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THIRTY-FIFTH ANNUAL REPORT

OF THE

OHIO STATE

BOARD OF AGRICULTURE,

WITH AN ABSTRACT OF THE PROCEEDINGS OF THE

COUNTY AGRICULTURAL SOCIETIES

TO THE

GENERAL ASSEMBLY OF OHIO

FOR THE YEAR 1880.

COLUMBUS:
G. J. BRAND & CO., STATE PRINTERS.
1881.

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REPORT

OF THE

OHIO STATE BOARD OF AGRICULTURE,

FOR THE YEAR 1880.

The Secretary, as required by law, herewith submits to the General Assembly of Ohio the thirty-fifth annual report of the Ohio State Board of Agriculture. It embraces the various proceedings and reports that are required by law, and that have been heretofore included in the Annual Reports of the Board; together with certain other matters connected with its new work.

Under the first head are the reports of the various business meetings of the Board, of the Annual State Fair of 1880, which was a complete success, and of the Annual Agricultural Convention, January 1881, which was a meeting of great interest. Also, the reports of the various county societies of the State.

Under the second head, and in the last half of this volume, will appear matter of interest in regard to the Farmers' Institutes organized and conducted the past winter, under the auspices of the Board, together with some of the lectures, addresses and essays delivered at those Institutes. The new work of the Board also includes the inspection and analysis of commercial fertilizers, and monthly reports on condition of crops and stock. This new work will all be fully explained, and some of the results given in the proper place. Reference has here been made to it that the State Board of Agriculture might at once, through its Secretary, express its appreciation of the fact that the General Assembly promptly and almost unanimously voted the increased appropriations rendered necessary by this increase of labor and expense; and also, by joint resolution, unanimously authorized the necessary printing at public expense, thereby for the first time placing this department on equal footing in this respect with the other departments of our State government.

It will be the earnest endeavor of our Board and of its officers to use these increased appropriations and facilities so faithfully and wisely as to justify their renewal and continuance.

Respectfully submitted in behalf of the Board.

W. I. Chamberlain, *Secretary.*

OFFICERS AND MEMBERS OF THE BOARD.

Officers for 1880.

L. B. WING, Newark, Licking county	*President.*
D. L. POPE, Welshfield, Geauga county	*Treasurer.*
W. I. CHAMBERLAIN, Hudson, Summit county	*Secretary.*
JAS. W. FLEMING, Columbus, Franklin county	*Ass't Secretary.*

Members for 1880.

L. B. WING	Newark, Licking county.
D. L. POPE	Welshfield, Geauga county.
LEO WELTZ	Wilmington, Clinton county.
PETER MURPHY	Hughes Station, Butler county.
CHAS. SMITH	Marion, Marion county.
ARVINE C. WALES	Massillon, Stark county.
W. N. COWDEN	Quaker City, Guernsey county.
R. H. HAYMAN	Portsmouth, Scioto county.
O. P. CHANEY	Canal Winchester, Franklin county.
R. BAKER	Elyria, Lorain county.

Executive Committee.

L. B. WING, *President*, D. L. POPE, ARVINE C. WALES,
LEO WELTZ, O. P. CHANEY.

Officers for 1881.

D. L. POPE, Welshfield, Geauga county	*President.*
LEO WELTZ, Wilmington, Clinton county	*Treasurer.*
W. I. CHAMBERLAIN, Columbus, Franklin county	*Secretary.*
JAS. W. FLEMING, Columbus, Franklin county	*Ass't Secretary.*

Members for 1881.

D. L. POPE	Welshfield, Geauga county
LEO WELTZ	Wilmington, Clinton county.
A. C. WALES	Massillon, Stark county.
O. P. CHANEY	Columbus, Franklin county.
R. BAKER	Elyria, Lorain county.
W. N. COWDEN	Quaker City, Guernsey county.
R. H. HAYMAN	Portsmouth, Scioto county.
J. C. LEVERING	Levering's, Knox county.
C. D. BAILEY	Gallipolis, Gallia county.
WM. S. FOSTER	Urbana, Champaign county.

Executive Committee.

D. L. POPE, *President*, O. P. CHANEY, A. C. WALES,
LEO WELTZ, WM. S. FOSTER.

LIST OF MEMBERS

OF THE

OHIO STATE BOARD OF AGRICULTURE

FROM THE FIRST STATE FAIR TO THE YEAR 1881.

[Members are elected to serve two years. The Board consists of ten members—the term of service of five expires annually.*]

Name.	Years of service inclusive.	Post-office.
M. L. Sullivant †	1850–53	Columbus.
S. Medary †	1850–53	Columbus.
M. B. Bateham †	1850	Painesville.
D. Lapham †	1850	Cincinnati.
F. R. Elliott	1850–51	New York.
J. T. Pugsley	1850–51	Convenience.
Arthur Watts †	1850–52	Chillicothe.
J. M. Edwards	1850–52	Canfield.
C. Springer †	1850–52	Meadow Grove.
J. G. Gest	1850–54	Xenia.
S. Halloway	1851	St. Clairsville.
Allen Trimble †	1850–51	Hillsborough.
William Case †	1852–53	Cleveland.
Philo Adams †	1852–53	Huron.
R. W. Musgrave †	1852–57	Sulphur Springs.
R. W. Steele	1853–56	Dayton.
William H. Ladd	1853–56	Brooklyn, N. Y.
D. McIntosh	1853–54	Shalersville.
J. T. Worthington	1853–56	Chillicothe.
Joseph Sullivant	1854–55	Columbus.
John K. Greene	1854–57	Cincinnati.
James L. Cox	1854–55	Zanesville.
B. Stedman †	1854–57	Washington, D. C.
Alexander Waddle	1855–60	South Charleston.
Abel Krum	1855–58	Cherry Valley.
Lucien Buttles	1856–59	Columbus.
G. W. Barker †	1856–57	Marietta.
John M. Millikin	1857–62	Hamilton.
Luther Smith	1857–58	West Liberty.
Thomas S. Webb	1857–58	Massillon.
Norton S. Townshend	1858–63	Avon.
L. Q. Rawson	1858–59	Fremont.
James M. Trimble †	1858–61	Hillsborough.
John Reber	1858–61	Lancaster.
D. E. Gardner †	1859–64	Toledo.
William DeWitt †	1859–64	Cleveland.
C. W. Potwin	1859–62	Zanesville.

MEMBERS OF THE STATE BOARD OF AGRICULTURE—Continued.

Name.	Years of service inclusive.	Post-office.
T. C. Jones	1860–67	Delaware.
Henry B. Perkins	1860–63	Warren.
David Taylor	1861–66	Columbus.
Jacob Egbert †	1862–63	Lebanon.
Nelson J. Turney	1862–69	Circleville.
D. McMillan †	1863–70	Xenia.
W. R. Putnam	1863–64	Marietta.
William F. Greer †	1864–67	Painesville.
James Fullington	1864–69	Irwin Station.
William B. McClung ‡	1864–71	Troy.
James W. Ross	1865–70	Perrysburg.
R. R. Donnelly †	1865–68	Wooster.
James Buckingham	1865–72	Zanesville.
J. Park Alexander	1867–70	Akron.
Norton S. Townshend ‡	1868–69	Avon.
William Lang	1868–71	Tiffin.
D. C. Richmond	1869–74	Sandusky.
R. P. Cannon	1870–75	Aurora.
James B. Jamison	1870–77	Cadiz.
L. G. Delano	1870–75	Chillicothe.
L. B. Sprague	1871–76	Springfield.
Simpson Harmount	1871–76	New Philadelphia.
John A. Warder	1871–76	Cleves.
W. S. Hickox	1872–73	Mansfield.
B. W. Carlisle	1872–79	Hooker's Station.
Justus C. Stevens	1873–74	Kenton.
John M. Pugh	1874–79	Columbus.
L. B. Wing	1875–80	Newark.
Russell C. Thompson †	1875–76	Sylvania.
Leo. Weltz	1876	Wilmington.
D. L. Pope	1876	Welshfield.
Chas. Smith	1877–80	Marion.
E. T. Stickney	1877–78	Republic.
A. E. Stone	1877–78	Gallipolis.
Peter Murphy	1877–80	Hughes' Station.
W. N. Cowden	1878	Quaker City.
R. Baker	1879	Elyria.
Arvine C. Wales	1879	Massillon.
R. H. Hayman	1880	Portsmouth.
O. P. Chaney	1880	Canal Winchester.
C. D. Bailey	1881	Gallipolis.
J. C. Levering	1881	Levering's.
Wm. H. Foster	1881	Urbana.

*The old members were re-elected in 1866—no change in the Board.

†Deceased.

‡Removed to Columbus.

A TABLE SHOWING THE PLACE AND RECEIPTS OF EVERY FAIR HELD BY THE STATE BOARD OF AGRICULTURE; ALSO A LIST OF THE OFFICERS OF EACH YEAR OR FAIR.

Year.	President.	Treasurer.	Secretary.	Place of Fair.	Receipts.
1850	M. L. Sullivant	Samuel Medary*	M. B. Bateham*	Cincinnati	$8,036 18
1851	same	same	W. W. Mather*	Columbus	8,204 09
1852	Arthur Watts*	same	same	Cleveland	13,360 00
1853	Samuel Medary*	M. L. Sullivant	George Sprague	Dayton	13,996 37
1854	R. W. Musgrave*	Joseph Sullivant	same	Newark	8,824 58
1855	J. T. Worthington	same	same	Columbus	9,745 54
1856	William H. Ladd	Lucien Buttles	same	Cleveland	16,684 20
1857	Alexander Waddle	same	John H. Klippart*	Cincinnati	17,530 75
1858	John M. Millikin	same	same	Sandusky	9,997 70
1859	N. S. Townshend	same	same	Zanesville	8,958 82
1860	Alexander Waddle	Chas. W. Potwin	same	Dayton	11,998 50
1861	Darwin E. Gardner	same	same	"	8,036 18
1862	Thomas C. Jones	David Taylor	same	Cleveland	11,260 64
1863	N. S. Townshend	same	same	"	11,142 00
1864	Nelson J. Turney	same	same	Columbus	12,620 54
1865	same	same	same	"	10,658 65
1866	William B. McClung	same	same	Dayton	14,035 80
1867	Daniel McMillan*	James Buckingham	same	"	18,692 98
1868	James Fullington	same	same	Toledo	15,606 25
1869	same	same	same	"	19,606 50
1870	James W. Ross	J. Park Alexander	same	Springfield	18,252 85
1871	William Lang	James Buckingham	same	"	16,460 25
1872	James Buckingham	Simpson Harmount	same	Mansfield	19,149 45
1873	Lincoln G. Delano	same	same	"	22,517 50
1874	same	same	same	Columbus	27,674 79
1875	R. P. Cannon	same	same	"	20,539 30
1876	S. Harmount†	John M. Pugh	same	"	11,909 61
1877	J. B. Jamison	same	same	"	21,151 21
1878	John M. Pugh	L. B. Wing	same	"	11,979 50
1879	B. W. Carlisle	same	Jas. W. Fleming, Acting	"	30,793 35
1880	L. B. Wing	D. L. Pope	W. I. Chamberlain	"	23,682 20
1881	D. L. Pope	Leo. Weltz	W. I. Chamberlain	"	....

*Deceased

†J. B. Jamison, acting President.

TRANSACTIONS

OF THE

OHIO STATE BOARD OF AGRICULTURE

FOR THE YEAR 1880.

State Agricultural Rooms,
Thursday Morning, *January* 8, 1880.

Members all present, having organized by electing: L. B. Wing, President; D. L. Pope, Treasurer; Jas. W. Fleming, Secretary.

The President appointed as the Executive Committee for the year: Arvine C. Wales, Leo Weltz, D. L. Pope, O. P. Chaney.

Agreed, That the State Fair be held Monday, Tuesday, Wednesday, Thursday and Friday, August 30, 31 and September 1, 2, 3, and that the Secretary give notice to other societies of the dates claimed.

In obedience to the wish of the Agricultural Convention, the Secretary was instructed to issue a bulletin, containing the reports of live stock reporters at the last fair, and also a synopsis of the proceedings of the convention.

If by him deemed advisable, the Secretary was authorized to secure short-hand reports of lectures, to be delivered at the State University during the course commencing January 13.

On motion,

Agreed, That the salary of Secretary be $1500 per annum, and that the additional sum of $300 be allowed for permanent clerk.

On motion, adjourned to meet Tuesday, Februrary 17, at 10 o'clock A.M.

State Agricultural Rooms,
Tuesday, *February* 17—9:30 A.M.

Board met pursuant to adjournment. Members all present, except Messrs. Pope, Weltz and Wales.

The minutes of the preceding meeting were read and approved.

The Secretary presented a communication from J. T. Stagers, setting forth a claim for second premium on pair of light harness horses exhibited at State Fair of 1879. The Secretary was instructed to correspond with the reporter of the horse committees relative to said claim, and if found correct, to issue to Mr. Stagers a check for the amount of second premium.

Ordered, That a medal be granted to Brooke & Evans for combined Flour and Meal Chest, exhibited at the last fair.

Mr. Hayman offered the following, which was adopted:

WHEREAS, There are many able reports from County Agricultural Societies on the condition of agriculture in the respective counties, thereby creating close competition for the silver medal offered by the State Board of Agriculture to the County Society furnishing to said State Board, the most full and complete written report of the condition of agriculture in the the county; therefore,

Resolved, That all the reports offered be embodied in the forthcoming State Report, and as soon as the matter be put in type, the Secretary send to each member of the Board, proof-sheets, which they shall carefully read and consider, and at the next meeting of the Board render their opinion as to which county report is entitled to the award.

Mr. White presented a claim of $16.00 for two tons of hay, delivered on the fair grounds in 1876, and for which he had never received pay.

On motion of Mr. Pope, the claim was allowed.

On motion, the Board proceeded to revise the premium list for the ensuing State Fair.

On motion of Mr. Smith, Mr. S. M. Oldham was requested to prepare and suggest to the Board, a list of premiums suitable to offer for bees, honey and apiarian supplies.

Agreed, That the following premiums be awarded to the County Agricultural Societies, which shall, the present year, furnish to the State Board the best accepted reports upon the condition of agriculture in their respective counties:

To the best report, a Gold Medal.
To the second best report, a Silver Medal.
To the third best report, a White Medal.

A recess was here taken until 2 o'clock P.M., when the revision of the premium list was continued during the afternoon and evening, when the Board adjourned to meet Wednesday at 8½ A.M.

Wednesday—8½ A.M.

Members all present, absent members having arrived Tuesday evening.

The revision of the premium list was resumed and continued during the day and evening.

Messrs. Pope, Chaney, and Murphy were appointed a committee to revise the several classes in the speed department.

The Secretary was instructed to invite proposals for printing.

Messrs. Baker, Cowden, and the Secretary were appointed a committee to revise the rules for the organization and management of county and district agricultural societies.

Mr. Baker, to whom had been referred, at a former meeting, a protest against the award on bakers' bread, reported in favor of sustaining the action of the committee; which report was accepted, and the premium ordered paid as awarded.

On motion, adjourned to meet Thursday, at 8½ A.M.

Thursday—8½ A.M.

The President announced the following assignment of departments:

Horses	O. P. Chaney.
Cattle, and Farm Products	R. Baker.
Sheep	W. N. Cowden.
Swine and Poultry	Peter Murphy.
Machinery and Agricultural Implements	Chas. Smith.
Mechanics' and Manufacturers' Products	R. H. Hayman.
Textile Fabrics and Domestic Manufactory	Arvine C. Wales.
Fruit, Flowers, and Fine Arts	Leo Weltz.

The members were instructed to appoint the necessary Superintendents for their departments, and report to the Secretary not later than March 15th, that their names may appear in the printed list.

Agreed, That the compensation of Superintendent and Assistants be the same as last year.

The member in charge of power hall was authorized to arrange for the necessary steam power to run the machinery on exhibition during the fair.

On motion, a recess was taken until 2 o'clock P.M.

2 O'CLOCK P.M.

On motion, the President, Secretary, and resident member were constituted a committee and authorized to award the contract for printing.

Ordered, That a diploma be granted to the Capital City Shirt Factory, for display of factory-made shirts, exhibited at the last fair; and to Wm. Keller, for display of grapes on trellises.

On motion, President Orton, of the Ohio University, was added to the committee of the Board to examine county reports.

Agreed, That the system of paid committee, for the live stock departments, be continued, and that the reporters to said committees be constituted advisory members of the same. That, where additional committees to those regularly appointed, shall be called to examine any class of live stock, the compensation for the whole shall not exceed the amount that would have been allowed the regular committee had it labored unassisted.

The committee to whom was referred the revision of the premiums in the speed departments, reported a list, which report was accepted, and the list adopted.

Mr. D. L. Pope presented his bond as Treasurer elect, which, on motion, was referred to the President and Mr. Wales, with power to approve if found correct.

On motion, adjourned to meet at the call of the President.

STATE AGRICULTURAL ROOMS,
THURSDAY, *April* 29—8 O'CLOCK A.M.

Board met pursuant to the call of the President—members all present, except Mr. Murphy.

The minutes of the preceding meeting were read and approved.

Messrs. Pope and Weltz were appointed a committee to settle an old claim of the Columbus Westbote against the Board, for advertising in 1877 and 1878.

Bills of the Turf, Field and Farm, and the Spirit of the Times, for circuit advertising in 1879, were referred to Mr. Pope for adjustment.

The President, Treasurer, and Secretary were appointed a committee to arrange for the disposal of the usual fair ground privileges.

Messrs. Chaney, Baker and Cowden were appointed a committee to contract for the furnishing of the necessary hay and straw.

Messrs. Chaney and the Secretary were authorized to arrange for the necessary band music.

On motion, the Board proceeded to the nomination of awarding committees, which business occupied the attention of the Board until Friday evening, April 30, resulting as follows:

Horses.—Geo. Zeilly, Massillon; L. B. Sprague, Plattsburg; C. D. Bailey, Gallipolis; M. J. Enright, Toledo.

Speed Department—Colonel Stone, Cincinnati; Wm. Edwards, Cleveland; A. Baumgardner, Toledo; S. B. Harmon, Dayton.

Cattle.—Dairy Breeds (Jerseys, Holsteins, Ayrshires and dairy stock)—C. S. Mills, North Ridgeville; Calvin Caswell, Castalia; Seth Gordon, Senecaville, Guernsey county.

Beef Breeds (Devons, Herefords, Angers and Galloways, any other pure beef breeds; work oxen, fat cattle)—W. A. Braman, Elyria; Dill Wigand, South Bloomfield; Jacob Trimble, Hillsboro.

Shorthorns—E. M. Clark, Springfield; A. V. Rudd, Windham, Portage county; George Grimes, Bourneville, Ross county.

Sweepstakes and Herds—J. H. Pickerell, Harristown, Illinois; H. C. Meredith, Cambridge City, Indiana; Wm. Warfield, Lexington, Kentucky; Dwight Curtis, Addison, Lenawee county, Michigan.

Sheep.—Fine Wools—Jost Gist, ——; George W. Penny, Newark; R. L. Spencer, Salesville, Guernsey county.

Long Wools and Mutton—J. T. McPherson, Cambridge; I. L. Fisher, Grafton; Eli Dayton, Welshfield.

Downs—Gus Wade, Massillon; Andrew Wilson, Wilmington; L. Williams, Clarksville, Clinton county.

Swine.—Senator B. W. Carlisle, Chairman, Hooker's Station; John L. Withrow, Jacksonsburg, Butler county; T. F. Parrott, Washington C. H.

Poultry.—General Charles Woods, Newark; D. M. Clark, Elyria; Frank Ford, Ravenna; Samuel Bearbower, Marion.

Machinery, Engines, etc.—Charles Babbitt, Newark; M. McDonald, West Mansfield, Logan county; Edwin Bayliss, Massillon; Prof. Robinson, Columbus; Chancy Bradley, Delaware.

Shop Machinery.—Jesse Kirk, Wilmington; Thos. Hazzard, Wilmington; A. Egbert, Harveysburg, Warren county; Clinton Smith, Richwood; J. W. Arnald, Quaker City.

Hay and Harvesting Machines.—C. C. Park, Tiffin; J. Q. Fulton, Wilmington; Henry Poe, Batesville, Logan county; Sylvester Johnson, Massillon; E. W. Beaty, New Holland; Peter Heller, Forest.

Agricultural Machines.—First Division—Colonel Hill, Cincinnati; D. M. Hayes, Washington C. H.; R. Bell, Elyria; Washington Geust, Canton; Austin Beachar, Shalersville, Portage county.

Second Division—S. O. Fulton, Wilmington; P. Hess, Columbus; Wm. Walters, Marion; Chas. Arther, Delaware; Clark Dix, Marion; Jobe S. Bishop, North Lewisburg; Geo. Nelson, Delaware.

Drills, Cultivators, etc.—John G. Sherman, Wakeman, Huron county; A. H. King, Marion; S. B. Dudley, Oberlin; John Nash, Galena; Wm. A. Kelly, Kenton.

Plows.—Ed. Hance, Grafton; J. F. Seefort, Green Camp, Marion county; Jno. Robinson, West Beaver, Columbiana county; E. B. Monnett, Bucyrus; I. N. Barnes, Piketon; F. Reber, Marion.

Worked Metals.—Hon. S. A. Conrad, Massillon; R. S. Frame, Washington, Gurnsey county; Albert Tite, Elyria; J. S. Abbott, Columbus; J. W. Clark, Marion.

Stoves, Castings, etc.—Col. Hill, Cincinnati; Frederick Hess, Massillon; Jacob Guise, Portsmouth; Geo. T. Jones, Granville; H. J. Walls, Columbus.

Vehicles.—Foos———, Newark; Wm. Cull, Marion; Capt. Burdick, Elyria; C. O. Foot, Garrettsville, Portage county; S. H. Ellis, Spring Valley.

Household Implements, etc.—J. M. Allen, Massillon; Hugh Kenan, Quaker City; Wm. Pool, Kenton; Jno. W. Kennan, Barnesville; Samuel Putnam, Marietta.

Glass, Crockery, etc.—B. F. Rees, Columbus; R. N. Taylor, Upper Sandusky; Horace Camp, Cuyahoga Falls, Summit county; D. E. Stevens, Newark; Ed. McGeary, Urbana.

Minerals and Chemicals.—N. B. Gates, Elyria; Cornelius Aultman, Canton; Col. J. M. Lewis, Barnesville; Professor Reed, Hudson; Professor Weltz, Marion; Dr. Charles C. Welsh, Wilmington.

Household Fabrics.—Geo. W. Conrad, Newark; Mrs. J. G. Lester, Canton; Mrs. George Nelson, Delaware; Mrs. Samuel Beaty, Massillon; Mrs. James Estep, Columbus.

Needle Work.—Miss Callie J. Kraner, Marion; Miss Laura Jamison, Cadiz; Mrs. I. L. Fisher, Grafton; Miss Bessie Wise, Bucyrus; Miss Anna Steese, Massillon; Miss Lizzie Sutton, Mt. Washington.

Braiding and Embroidery—Jas. Estep, Columbus; Miss Mary A. Johnson, Massillon; Miss Jennie Wallace, Marion; Miss Nettie Jackson, Amherst; Miss Delia S. Kile, Troy, Miami county; Miss J. Eversole, California.

Crochet and other Ornamental Work—T. M. Johnson, Quaker City; Mrs. Jas. DeWolf, Columbus; Miss Nellie Gates, Elyria; Mrs. Geo. W. Trowbridge, Glendale, Hamilton county; Miss L. C. Baker, Elyria.

Cabinet Ware.—William Wise, Bucyrus; Martin Barnhart, Marion; J. E. Slitor, Burton, Geauga county; William Schneer, Elyria; Mrs. A. C. Wales, Massillon; Jas. Linton, Clarksville; L. R. Partridge, Marysville.

Factory Goods.—George Wallace, Newark; Mrs. Levi Stump, Palow Postoffice, Stark county; D. C. Kennan, Barnesville; A. T. Skinner, Massillon; J. L. Telkner, Ostrander.

Stationers' Ware.—Geo. B. Christian, Marion; G. G. Washburn, Elyria; C. S. Brady, Newark; N. W. Taylor, Cleveland; Ed. Spielman, Canal Winchester.

Merchants' and Dealers' Class.—Parker Osborn, Wilmington; James Trimble, Hillsboro; Mrs. L. B. Wing, Newark; Mrs. C. H. Kibler, Newark; Mrs. J. M. Pugh, Columbus.

Boots, Shoes, etc.—Couis Buckins, Canton; B. Tristam, Marion; Philip Game, Canal Winchester; J. L. Carpenter, Lee, Athens county; B. C. Steers, Haydenville, Hocking county.

Leather Manufactures.—Henry Lorisch, Wilmington; John Dudley, Marion; G.

Rosebrough, Newark; John Mobley, Canal Fulton, Stark county; J. M. Waugh. Mansfield.

Flour, Grain and Seeds.—E. E. Williams, Avon, Lorain county; George W. Cole, Portsmouth; S. S. Ketchum, Toledo; Jas. Gregory, Jr., Marion; G. D. Owen, Newark.

Corn, etc.—Q. D. Millard, Huntsburg, Geauga county; D. V. Larkins, Portsmouth; David R. Atwater, Massillon; A. L. Clapp, Chatham Center, Medina county; J. S. Levering, Wilmington.

Cheese.—Bradford Race, North Ridgeville, Lorain county; W. B. Straight, Hudson, Summit county; —— Eldridge, Aurora, Portage county; Calvin Dodge, New Lyme, Ashtabula county; D. B. Wagner, Circleville.

Sweepstakes on Cheese.—Blackman Solon, Cuyahoga county; E. G. Ellis, Chardon, Geauga county; G. W. Crozier, Wellington; Frank Snow, Garrettsville, Portage county; —— Williams, Medina county.

Butter, Bread, etc.—J. B. Clark, Oberlin; Mrs. D. M. Hayes, Washington C. H.; Mrs. J. M. Edwards, Washington C. H.; Mrs. L. A. Teller, Massillon; Robert Skimmings, Burtenville, Clinton county; Mrs. S. H. Ellis, Springvalley.

Honey, Preserves and Pickles.—A. D. Lindsey, Wellington; Mrs. Sidney Moore, Delaware; Miss Ella Morrow, Marion; Mrs. Christ. Hoffman, Wellington; Mrs. N. E. Lovejoy, Columbus; Miss S. A. Smith, Delaware (Millville Box); Mrs. Josephine Pennington, Tiffin.

Potatoes and other Root Crops.—D. C. Richmond, Sandusky; A. V. Fauver, North Eaton, Lorain county; W. W. Reed, Canton; S. Silvers, Hamilton; B. Cusic, Marion.

Vegetables.—Colonel G. S. Innis, Lancaster; J. P. Jenne, North Amherst; John M. Lane, Zanesville; Wilson B. Ely, Washington C. H.; Jos. Price, Barnesville.

Bees, Honey and Apiarian Supplies.—Melville Hayes, Wilmington; Lucius Herrick, Wellington; E. T. Stickney, Republic, Seneca county; John Kirkpatrick, Cambridge; —— Oldroyd, Columbus.

Fruits.—Summer and Fall Apples—Geo. Townshend, Zanesville; Levi Buckwalter, Hallsville, Ross county; N. H. Albaugh, Tadmar, Montgomery county; Geo. K. Niesz, Canton; Geo. H. Miller, Norwich, Muskingum county; W. B. Stover, Akron.

Winter Apples—Wm. T. Keller, Miamiville; S. J. Sutton, Mt. Washington; Levi Stumps, Palo P. O., Stark county; J. J. Harrison, Painesville; Geo. W. Dean, Kent, Portage county; Thos. Paxton, Jr., Loveland.

Plate Apples—Dr. J. A. Warder, North Bend, Hamilton county; Geo. W. Trowbridge, Glendale, Hamilton county; S. H. Hurst, Chillicothe; Geo. Peters, Troy; Samuel Walker, Wilmington; W. Crawford, Cuyahoga Falls.

Peaches, Quinces and Plums—Francis Granger, West Toledo; A. M. McKelvey, St. Clairsville; J. V. Whitney, Montville, Geauga county; Chas. Howe, Terrace P. O., Hamilton county; John Moore, Mt. Washington, Hamilton county.

Pears—C. W. Barry, Rochester, N. Y.; Charles Carpenter, Kelly's Island; S. S. Boyd, Wilmington; — Ramsey, Dayton; A. M. Wilhelmy, Cleveland; H. Hefflebower, Mt. Clowia, Lucas county.

County Fruits—M. B. Bateham, Painesville; Sanford Wilson, Marion; N. Ohmer, Dayton; F. M. Black, Darbyville; P. P. Turpin, Linwood, Hamilton county; Geo, M. High, Middle Bass.

Grapes—Geo. W. Campbell, Delaware; Gen. Lindsey, Kelly's Island; Joshua Seeny, Chillicothe; A. F. Hopkins, Brownhelm, Lorain county; J. B. Lucas, Xenia; Addison Kelly, Kelly's Island; W. W. Farnsworth, Waterville, Lucas county.

Native Wines.—F. F. Remple, Logan; William Sanders, Dayton; N. J. Turney, Circleville; F. Brachman, Cincinnati; Gen. Charles Walcutt, Columbus.

Flowers and Plants (Professional list).—S. S. Jackson, Cincinnati; Francis Pentland Lockland; A. M. Wilhelmy, Cleveland; Mrs. E. Blount, Columbus; Miss M. Penney, Newark.

Amateur List—Dr. J. Belleville, Cedar Point, Hamilton county; Miss Hattie Townshend, Columbus; Miss High, Middle Bass.

Fine Arts.—Drawings, Paintings, Etc.—F. C. Sessions, J. H. Anderson, Walter B. Page, H. T. Chittenden, E. O. Randall, Columbus; John Spielman, Canal Winchester.

Sculpture—Dr. Toland Jones, London; Dr. Lightner, Sabina; Dr. Woodbury, New Vienna, Clinton county; Dr. Mounds, Morrow; Dr. McBride, Zanesville; J. L. Wilson, Morrow.

Philosophical Instruments.—L. F. Ward, Elyria.

Musical Instruments.—James Trimble, Hillsboro; Miss Stella Cleveland, Wilmington; Miss Jennie Grove, Washington C. H.; Mrs. D. Worthington, Washington C. H.; Miss Lydia Linton, Wilmington; E. B. French, Elyria.

FRIDAY EVE, *April* 30.

At the Friday evening session of the Board, J. W. Fleming presented as follows his resignation as Secretary of the Board:

COLUMBUS, *April* 30, 1880.

To the Honorable Ohio State Board of Agriculture:

GENTLEMEN: Owing to circumstances beyond my control, I feel it a duty to myself to tender herewith my resignation as Secretary of your honorable body. In severing my connection with the Board, I desire to acknowledge the very pleasant business relatons that have existed between us, and to return thanks for the many courtesies that have been extended to me by each member of the Board.

Very respectfully, your obedient servant,

JAMES W. FLEMING.

Upon accepting the resignation, the following resolution was unanimously adopted:

Resolved, That in accepting the resignation of Secretary Fleming, the Board take great pleasure in bearing testimony to his honesty, promptness, his large executive ability, and the very ready and efficient manner in which he has discharged the clerical duties of his office.

At the request of the Board, Mr. Fleming agreed to remain in the office until his successor should be appointed, and if so desired, until after the ensuing State Fair, and that during the time he remains he shall continue to draw the amount of salary paid him as Secretary.

During this evening's session Mr. W. N. Cowden acted as Secretary *pro tem.*

Adjourned, to meet at call of President.

State Agricultural Rooms,
Columbus, *May* 11, 1880.

Board met in pursuance to the call of the President—members all present, except Mr. Hayman.

The minutes of the preceding meeting were read and approved.

On invitation, Prof. Townshend, of the Ohio University, addressed the Board relative to a more thorough system of operation in the interest of agriculture.

A vote of thanks was tendered the Professor for the many valuable suggestions contained in his remarks.

The following, by Mr. Wales, was adopted:

Resolved, That the American Veterinary College of the University of the State of New York, be requested to confer upon A. J. Jannir, of Navarre, Ohio, the free scholarship in said college offered to this Board.

Ordered, That a communication, signed by the President and Acting Secretary, expressing the action of the Board, be sent to the Dean of the Faculty of said college.

Mr. Murphy moved that the Board proceed to the election of a Secretary. The motion was discussed, and a report had from the committee who had visited Mr. W. I. Chamberlain.

Mr. Chaney moved to amend the motion by deferring the election of Secretary until a future meeting of the Board.

The original motion prevailed, when W. I. Chamberlain was elected.

The Executive Committee were requested to inform Mr. Chamberlain of his election, and make arrangements and terms as to his acting as Secretary.

Mr. Wales offered a resolution directing the Executive Committee to arrange for a dining-hall for refreshments for the Board and its guests.

The following resolution was adopted:

Resolved, That the Secretary be requested to prepare an address to the farmers of the State, setting forth the wish of the Board to extend and increase its usefulness, inviting the officers of the different voluntary societies to put themselves in more intimate relations with the State Board, and to furnish the Board the names and address of their members, and embodying, in a concise and popular manner, the substance of the ideas expressed by Prof. Townshend, and that he take steps to have the same published in the Ohio Farmer, Cincinnati Grange Belletin, and such other papers as will give the same gratuitous distribution or publication.

Recess until 2 P.M., when the Board reassembled.

President Wing announced that the conference of the Executive Committee, with Mr. Chamberlain, was, in substance, as follows:

It is understood that Secretary Chamberlain shall receive proper compensation for labor performed and expenses incurred, until August 1, 1880, in promoting the work of the State Board, and after that date he assume full charge of the duties of his office, with a salary at the rate of $1500 per annum until January 1, 1880; also, that Mr. Fleming be expected to carry the main burden of the work of the Department, at least until August 1.

Mr. Smith was added to the Committee on Bands, and also instructed to act with the Executive Committee in arranging for dining-hall for refreshments for the Board and its guests.

Bills of Nevins & Myers, American Express, Morgan & Co., Columbus Picture Frame Co., and Turf, Field and Farm, were ordered paid.

State Agricultural Rooms,
Columbus, *July* 27, 1880.

Members of Executive Committee all present in pursuance to the call of the President.

Mr. Wales, who, at a former meeting of the Board, was appointed a committee to visit Dr. Salisbury, of Cleveland, and consult him relative to his hog-cholera investigations, reported that Dr. Salisbury claimed to have some valuable discoveries for the prevention and cure of hog-cholera, and that a paper from him on the subject could be secured for the sum of $2,000.

On motion, Mr. Fleming was authorized to expend, not to exceed the sum of $300, in securing notice of the Ohio State Fair in the county newspapers.

Agreed, That the advertising in Columbus city papers be referred to the Acting Secretary, with instructions to expend not to exceed the sum of $311.

Agreed, That the advertising in papers devoted more particularly to live stock, be referred to Messrs. Chaney and Fleming.

Board adjourned to visit the fair grounds.

WEDNESDAY, *July* 28—8 O'CLOCK A.M.

Committee reassembled.

On motion, Messrs. Gregg, Renick and Weigand were granted the use of the fair grounds for a cattle sale, on Thursday and Friday, August 26 and 27.

Adjourned, to meet at the call of the President.

STATE AGRICULTURAL ROOMS,
COLUMBUS, *September* 14, 1880.

Board met pursuant to the call of President. Members all present.

The protests presented at the late fair were acted upon as follows:

Ordered, That the member in charge be instructed to investigate the evidences of fraud asserted in regard to the sheep of T. P. Remington & Son, and withhold payment, unless he is convinced there is not proof of fraud.

To the Honorable Ohio State Board of Agriculture:

GENTLEMEN: I hereby protest against the award of second premium on ram two years old and over, entered in book 25, as not coming under the rule of your Board relative to certificate of shearing.

H. S. HUBBARD.

The member in charge having received the proper certificate, the action of the committee was sustained.

SPRINGFIELD, O., *September* 9, 1880.

Ohio State Board of Agriculture, Columbus:

We are very creditably informed that the committee on examination of Reapers and Mowers and automatic grain binding machinery, at the late Ohio State Fair, held September 1st, 2d, and 3d inst., were not such a committee as contemplated by your Board, and not such a committee as could act, after the information they received from the Superintendent of the machinery department, Mr. Chas. Smith. One, at least, of the said committee, is an agent for a competing machine on exhibition on the grounds, and from such cause was disqualified, not being a person exercising free and impartial judgment in the examination and award.

We, therefore, offer our protest as to the awards made by such committee on Hay and Harvesting Machinery, and Tools, and on all awards made in this class by this committee, and ask that the premiums all be revoked and the action of the committee be rescinded.

We will furnish your Board, at the earliest possible moment, sworn statements of competent parties, in proof of the assertions we here make, and which we believe will clearly satisfy the mind of the Board that the committee was not one who could not consistently act, and especially so in view of the instructions received by them from the Superintendent of the department, Mr. Chas. Smith.

Respectfully, yours,

WHITLEY, FASSLER & KELLY.

Agreed, That the protest be referred to Mr. Chas. Smith, the member of the Board in charge of the machinery department, and that he be instructed to make a thorough investigation, carefully examine the statements presented, allowing all parties interested to be heard, and report the result of his investigation at the next meeting of the Board.

Ordered, That premiums on articles examined by the committee referred to in the protest, be withheld until the report of the investigation.

COLUMBUS, *September* 7, 1880.

Hon. Members of State Board of Agriculture:

GENTLEMEN: The committee on stoves, castings, etc., having awarded first premium to Mr. Emrich, on a pretended school-room ventilating stove, which was fraudulently obtained, in violation of Article IV, General Instructions to Committee, I hereby enter my solemn protest against the premiums being paid, for the following reasons, viz.:

1st. Because Mr. Emrich had no school-room ventilating stove on exhibition at the State Fair, it being simply a plain, common shop stove.

2d. Because the entry was fraudulently made. His agent made the same with the knowledge that Mr. Emrich does not manufacture and does not pretend to have school-room ventilating stoves for sale, or to have had one on exhibition at the State Fair.

3d. That he did willfully take advantage of the ignorance of the committee on the subject, and boasted after the committee had left, that " he was smart enough to mislead the members and get the *red card*.

For the foregoing reasons I enter my protest, and ask its careful consideration by the Board.

I am prepared to substantiate the above by irrefutable evidence.

Respectfully submitted.

J. J. VOGELGESANG,

Referred to R. H. Hayman, the member of the Board in charge of Third Department, with instructions to investigate and report at the next meeting of the Board.

Ordered, That the premium be withheld until the report be made.

Recess until 2 o'clock P.M.

TWO O'CLOCK P. M.

Board re-assembled, when Secretary Chamberlain read the following paper:

Mr. President and Gentlemen of the State Board:

The present seems to me a proper and auspicious time to inaugurate the new and advanced work of the Board. That some more extended work should be undertaken seems to be admitted by the Board and expected by the public. Your committee that first conferred with me in May in regard to becoming your Secretary distinctly stated this, and I as clearly felt and said that if managing the State Fair and editing the annual Agricultural Report were the only work of the Board and its Secretary, I should be unwilling to accept the position.

But it is easier to see that some new work should be undertaken than to decide just what that work should be. This question has occupied much of my thoughts during my Western travels, and has been the subject of full consultation with the Agricultural Secretaries of other States. I doubt not it has been much in your thoughts, too.

I have now a definite plan of work to submit for your approval, and I believe, as I have already said, that the time for action has fully come. The State Fair has just come to a most successful close, leaving a considerable sum of available funds in our treasury. The greater part of the office work necessary in making out the pay-roll, settling accounts and paying bills and premiums is finished, or well under way, and the clerical force now in the office is efficient and rapid, and if retained is ample for an enlargement of work. I therefore ask from you definite authority:

First—To co-operate with county or other local Agricultural Societies, and Granges in calling and organizing "Farmers' Institutes" or Agricultural Conventions during the present fall and winter. My own work would be to attend and address such meetings, take part in the discussions, and secure in advance competent lecturers and speakers so as to create interest, insure the success of the meetings, diffuse agricultural information, and help secure better results in agriculture all through our State.

This plan of holding Farmers' Institutes has been pursued in Michigan for a number of years with the most beneficial results. I explained my idea of it more ully at a former meeting, and need not dwell on it longer now. Its adoption would require but a very small outlay of funds.

Second—I ask definite authority to inaugurate a system of monthly crop and stock reports during the summer and autumn of each year. Illinois and Kansas are already carrying on this work, to the great advantage not only of the agricultural, but of the commercial and business interests of those States. And, in my opinion, Ohio cannot longer afford to neglect it. These crop and stock reports, in order to be of real value, must be brief, concise, accurate and *truthful*, and should be published *promptly and widely*. And in order to secure promptness, the information must, I think, be gathered and published by this Board, without the intervention of other State or county officials. Allow me to state two facts in illustration and support of this opinion.

On Friday of last week, most of the daily papers of the land contained in their telegraphic columns the announcement that the wheat crop of Illinois for 1880 would amount to 53,000,000 bushels. These figures were not mere guesses, but are a part of the results of the footings of about 500 carefully itemized reports from all parts of the State, made by trained correspondents to S. D. Fisher, the Secretary of Agriculture, under a system of monthly crop reports, such as I now urge this Board to adopt. Previous estimates from the same sources in regard to acreage and condition of the growing or harvested crop had been published in June, July and August; but this final estimate is based largely on actual returns from the threshing machines.

Now, this prompt and approximately accurate information is deemed of sufficient immediate importance to our agricultural and business interests, to be flashed over all our wires, printed in all our dailies, and sent beneath the Atlantic waves to the quick knowledge of the Old World.

Note now the second fact I promised to give. The same day that our Columbus and other dailies published the Illinois statistics for August, 1880, we in this office applied, for the third time, to the statistician in the Secretary of State's office, for the crop statistics for 1879, and were informed that they had not all as yet been received from the County Auditors, and that it would be some three or four weeks before they could be tabulated and ready for the printer. And so by the time we have obtained them, and the State Printer has printed and bound them in our annual report, and the latter has reached the hands of the farmers, this "news" will be nearly two years old, and the farmers will have half forgotten what sort of a crop they did have so long ago, and lost all interest in the figures!

For what is the value of crop statistics? Not chiefly historic or retrospective, you will admit, but present and prospective. It might be interesting, historically, to know the "acreage," and "yield" of corn in Egypt in Joseph's time, or in Massachusetts or New York in the days of our Revolution, or in Ohio nearly two years ago. But it will not help the farmers of to-day to decide what they fairly ought to get for wheat or corn, and whether to sell or hold. Nor will it help sagacious business men to fortell whether, as the result of present abundant harvests we may reasonably look for business activity and general prosperity. But prompt, truthful and accurate reports of the acreage and of the condition of the crops all through the growing season, with reports of actual yields as soon as threshing is fairly begun, would be of immense service not only to the interests of agriculture, but to the business interests of the whole civilized world. Such reports would give a solid basis of knowledge instead of vague uncertainty, and would enable sagacious business men to reef or spread sail, as the case might be. They would, too, to some extent, serve to prevent wild speculations, "corners" in wheat, pork, corn, etc., which tend to disturb the equilibrium of trade, and enrich the few at the expense and sometimes distress of the many.

But while such a system of reports would extend its benefits through every avenue of business and commerce, it would, I think, be of special advantage to the farmer, and his are the interests we, as a Board of Agriculture, are specially bound to foster and promote. Take a single illustration, and on this head I quote freely from an article written by myself, and published without signature in the Ohio Farmer some two months ago. After stating that Secretary Chamberlain was trying to secure concerted action among the Boards of Agriculture in the great grain-producing States of the West in the matter of reports of crops, in a way to give the farmers prompt and accurate information on which to base an opinion as to what will be a fair price for their grain, the article goes on to say:

"It is notorious that our farmers have not had such information, while, at least, the large buyers have had it. For example, the large firm of Halliday Bros., of Cairo, keep a number of experienced men traveling all the time, a main part of whose business is to get the most reliable information possible, both by observation and inquiry, as to the actual amount of wheat and other grain in the country, or growing in the fields, and the relative amount compared with last year, and with the average for ten years. They have also local buyers, and a part of their business is to examine and report on crop prospects. They are to report the *exact truth*, neither overestimating nor underestimating. With this reliable information in their sole possession, as accurate as is possible, the firm forms on opinion what is the top figure they dare contract for, for July delivery (for example) of No. 1 and No. 2 wheat, and they proceed at once to contract as much below this figure as possible.

"In the same way many firms in all our principal cities get information. They pay for it and it belongs to them, and they use it for their own ends and never divulge it. If anything is published it is not the exact truth, but such variation from it as shall play into their hands. But the farmer is isolated, has but a small interest at stake, and can not afford to procure such costly information, and the result is that he always goes into an unequal contest when he bargains with the buyer. His eyes are blindfolded while the buyer's eyes are wide open. He does not know what he really ought to get, while the buyer knows the top figure he can pay, and will shade under all he can. It is not a question of market price or daily quotations. The farmer, of course, can read those, and welcome, for the large buyers, temporarily at least, *make those quotations*. It is a question whether those prices are fairly set with reference to home production and consumption, and foreign demand.

"Take a single example. In June, 1879, probably every large buyer in our principal Western grain marts knew that though the crop was likely to be large, the foreign demand would be immense. Of course they knew there would, in all probability, be a strong advance. But the facts were so manipulated as to make the impression of an advance as little prominent as possible. The immense wheat crop was made prominent, and little mention was made of the immense 'shortage' abroad. And so the great bulk of the winter wheat left the hands of the farmers at less than a dollar a bushel, and then all at once, or within a few weeks, it advanced to $1.45; but the bulk of it was in the elevators, or at least contracted, and so the farmers got little benefit from the immense advance. The case was not so bad with the spring wheat of the Northwest, for that was not ready for shipment, and hence not much of it was even contracted.

"Now the point we make is this: If the farmers had been as well informed as to the actual condition at home and abroad as were the buyers and speculators, they would have held for the advance, unless forced to sell. But how shall they be so informed? We reply, we see no hope of it, except through concerted action between the Boards of Agriculture of our great grain-producing States, and this is the very thing the Secretary is trying to work up in his extended tour through the great West, and in his conferences with the Secretaries of the Boards of other States.

"If, now, the Secretary in each State can, through a large number of reliable farmer correspondents in all parts of his State, get the required information month by month, in regard to the various crops, condense the results, telegraph them to all other Secretaries, and receive similar telegrams from them, and take measures to ascertain probable export demand, he will then be able to issue a monthly bulletin that shall be of real value to the farmers of each State. Such bulletins, if concise, and yet full and reliable, would be gladly published by all agricultural and local papers, and even by our great daily papers, and would, we believe be, eagerly looked for by the farmers. Of course, buyers will have equal access to them, but there can be no objection to that, as they already have similar though less accurate information from their own sources.

"An accurate knowledge of both home and foreign supply and demand, is the only means of fixing the fair market price of grain, and we see no reason why concerted action on the part of the Secretaries can not get and diffuse such knowledge. We believe, too, our farmers will appreciate such work, and deem the necessary money wisely expended."

Now, although such reports would be of great value from a single State, as has been already proved in Illinois, yet their value would be enhanced tenfold if a uniform system of inter-State crop and stock reports could be adopted through all the great grain-producing States of the West. I conversed with several of the Secretaries of Agriculture in these States, and found them all ready for action and impressed with its importance. I therefore ask

Third—For definite authority to unite with Secretary Fisher, of the Illinois Board, and Secretary Hudson, of the Kansas Board, in calling a meeting or Convention of Secretaries and Presidents of the Boards of Agriculture of the great grain and stock-producing States of the West, and of such members of these Boards as may be able to attend, to discuss and take action on this matter of inter-State crop reports, and such other matters of mutual interest and concern as may come before us. "In union there is strength," and I am sure that such a Convention, if properly planned and conducted, will be of great benefit to the agricultural interests we represent.

It may be thought by some that money should not be taken from the State Fair fund, made up of the surplus receipts above expenses, and used even for work so useful and important as that outlined above. But I think it may justly and wisely be done, for the following reasons:

1st. This Board is not a private stock company authorized by law to run a Fair or hold an Exposition and make what money it can out of it. And we should in no way countenance the idea that such is the case. This is a State Board of Agriculture, created by law more than thirty years ago, its rooms located and furnished in the State House by act of Legislature, and its office expenses and Secretary's salary and clerk hire paid by annual appropriations by the Legislature. Our work is, in substance, defined by law to be "the promotion of the best interests of agriculture in Ohio." So far forth as the State Fair may be made a means to this end, we are bound to see to it that the State Fair should be as fine an agricultural exhibition, and as large a financial success as it is possible to make it. Since the annual Agricultural Report is another means to the same end, we are bound to make that as good and as thorough as we can. But these two are plainly not the only means within our reach. I have indicated above what seem to me to be the more important ones now. Others may suggest themselves to your wisdom in the future.

Now, if it is once thoroughly understood that all surplus Fair funds beyond a reasonable reserve for improvements and to provide for reverses caused by stormy weather at Fair time, are faithfully and honestly used by this Board in promoting the interests of agriculture *in other lines*, then our Fair will at once be acknowledged to be, as it really is, the people's institution, patronized as such by the people of the whole State, and no longer, in any sense, on a level with other fairs in the State, no matter how large, or excellent, or well conducted.

2d. If after a most successsful fair, and with a full treasury, we hesitate or defer the promised enlargment of our work, there will be a feeling of surprise and disappointment all abroad through the State. For it is not to be denied that the appointment of a new Secretary from their very ranks, was regarded by the farmers of the State as a pledge of enlarged and practical work for the interests of agriculture. If, therefore, we at once set about enlarging the work of the Board, as if we really "mean business," we shall prevent any such feeling of disappointment, and shall meet a much more hearty response from the people and from the Legislature should our work assume such proportions as to require enlarged appropriations for its prosecution, as is already the case in Illinois and Kansas.

I, therefore, urge you to take definite action at once, giving me the requisite authority, and I promise to undertake the new work with promptness, and carry it forward with earnestness and diligence.

Respectfully submitted.

W. I. Chamberlain, *Secretary.*

Mr. Chaney offered the following, which was adopted:

Resolved, That the Secretary proceed forthwith to enlarge the work of the Agricultural Department, for the better promotion of the agricultural and stock breeding interests of the State, and to defray the expenses of carrying on the work —printing, etc., during the remainder of the fiscal year, he be authorized to expend not to exceed the sum of one thousand dollars, and that the work be instituted and carried on in accordance with the suggestions made in the Secretary's report just presented to the Board.

On motion, the Secretary was instructed to correspond with the Secretary of the Illinois State Board of Agriculture, requesting that Board to call a convention of the State Agricultural Boards of the grain-producing States of the West.

On motion, Messrs. Wing, Chamberlain, and Fleming, together with Professor N. S. Townshend, of the Ohio State University, were appointed a committee to examine the reports from county agricultural societies, for 1879, and award to the most complete report the Silver Medal offered by the Board.

Ordered, That a bulletin be published, containing the reports of the live stock reporters, for the late Fair, and, also, a list of awards in departments other than live stock.

On motion, adjourned to meet at the call of the President.

State Agricultural Rooms,
Columbus, *January* 4, 1881.

Board met pursuant to the call of the President. Members all present.

On motion, the Board proceeded to pass upon the articles commended at the last State Fair. The articles in the respective departments were referred to the members in charge and disposed of as follows:

TO BE AWARDED PREMIUMS.

Revolving Scraper Co., Surface Grader.
Stewart & Park, Till-Mill Attachment.
Philip Rausch, Apparatus for Watering Stock.
Atchison & McLaughlin, Little Giant Portable Derrick.
Hoosier Drill Co., One-Horse Corn Drill with Fertilizer Attachment.
Barnard & Leas Manufacturing Co., Corn Cleaner.
" " Ware-house Seperator.
C. M. Ambrose, Clothes Wringer.
Amor Vapor Stove Co., Vapor Stove and Burners.
Thorby Food Co., Display Thorby Food.
F. R. Wilson & Son, Plow and Wagon Single-Trees.

TO BE ENUMERATED IN THE PREMIUM LIST FOR 1881.

Dump Scraper, Wood-Workers' Vise, Combined Bob Holder and Truck, Four-wheel Carriage Plow, Check Rower, Carriage and Entrance Gate, Wagon Single-trees, Display of Bread and Cakes.

For the premium offered by the Board for experiments, with two or more kinds of crops, there were two applicants, Mr. Thomas Johnston, of Mecca, Trumbull county, and Mr. B. Cusick, of Marion, Ohio.

After an examination of reports, statements, etc., it was

Agreed, That the premium of $50.00 be awarded to Mr. Cusick.

Awards on field crops were made as follows:

B. Cusick, Marion county, Ohio, best five acres of corn, not less than 100 bushels per acre, $50.00.

Simon Berry, Champaign county, best five acres of wheat, not less than 40 bushels per acre, $50.00.

The President appointed Messrs. Chaney, Murphy and Weltz a committee to examine and audit the accounts of the Secretary and Treasurer.

The committee reported the finding of the accounts correct.

On motion, the Board adjourned to meet in Columbus, January 5th, at 11 o'clock A.M.

THURSDAY, *January* 6, 1880—2 O'CLOCK P.M.

Members of Board of 1880 all present, to close up the unfinished business of the year preparatory to the organization of the Board elect for 1881.

Messrs. Pope and Weltz, to whom had been referred, at a former meeting, a bill of $98.00 for advertising in 1876 in the Columbus Westbote, reported in favor of its payment, when it was ordered that a check be drawn on the Treasurer for the amount.

Mr. Smith, the member in charge of machinery department, was allowed, in addition to bill of ordinary expenses as member, the sum of $100.00—for days' service other than attendance on Board meetings and Ohio State Fair.

On motion, the award made to Osborn & Co., at the last State Fair, for Automatic Grain Binder, be permanently withheld on account of the fraudulent manner in which said award was obtained.

The accounts of the several members were approved, and orders drawn on the Treasurer for the amounts.

Mr. Hayman, to whom was referred, at a former meeting, the protest of J. J. Vogelgesang against the payment of premium awarded to C. Emrich, for school-house stove, exhibited at the last State Fair, reported in favor of sustaining the award as made by the committee; which report was adopted.

On motion, adjourned.

ORGANIZATION OF STATE BOARD OF AGRICULTURE FOR 1881.

O. P. Chaney, of Franklin county; Leo Weltz, of Clinton county; D. L. Pope, Geauga county; R. Hayman, Scioto county; W. N. Cowden, Guernsey county; R. Baker, Lorain county; A. C. Wales, Stark county; Chas. D. Bailey, Gallia county; Wm. S. Foster, Champaign county, and J. C. Leavering, of Knox county, members composing the State Board of Agriculture for 1881, met and organized by electing the following officers for the ensuing term:

D. L. Pope	*President.*
Leo Weltz	*Treasurer.*
W. I. Chamberlain	*Secretary.*

The following, offered by Mr. Wales, was adopted:

Resolved, That the salary of the Secretary of the State Board of Agriculture be established at two thousand dollars per annum.

Mr. Wales offered the following, which was adopted:

Resolved, That the office of Assistant Secretary of the State Board of Agriculture is hereby created, and that the salary of Assistant Secretary be fixed at fifteen hundred dollars per annum.

In accordance with the above resolution, the election of Assistant Secretary being in order, James W. Fleming was duly elected to the position.

The President appointed, as the Executive Committee for the year:

Leo Weltz, of Wilmington.
O. P. Chaney, of Canal Winchester.
A. C. Wales, of Massillon.
Wm. S. Foster, Urbana.

It was, on motion,

Agreed, That the Ohio State Fair, for 1881, be held the week commencing Monday, August 29.

The Secretary was instructed to correspond with the Presidents of county agricultural societies, with a view to securing a list of names of persons competent to serve on the various committees, and from which the Board may select.

The Secretary read a communication from Mr. J. H. Wooley, in which the Board was urged to offer a premium for collection of weeds, properly named and classified.

On motion, the communication was laid over until the meeting of Board for arranging the premium list.

The Executive Committee was instructed to confer with the Franklin County Agricultural Society, and citizens of Columbus, relative to locating the Ohio State Fair.

The Secretary was instructed to present a memorial to the members of the General Assembly, setting forth the new and increased work of the Board, and respectfully request the necessary appropriations as set forth in the estimate to the Auditor of State.

Agreed, That the Secretary be authorized to draw on the funds of the Board for the money necessary to carry on the new work in connection with Farmers' Institutes, Crop Reports, etc.

Ordered, That the Ohio Farmer be sent to each member of the Board during the present year.

Adjourned, to meet at the call of the President.

Attest:
W. I. CHAMBERLAIN, *Sec'y.*
By J. W. FLEMING, *Ass't Sec'y.*

TREASURER'S REPORT.

OHIO STATE BOARD OF AGRICULTURE,
TREASURER'S OFFICE, *January* 5, 1881.

The following is a correct showing of the financial transactions and condition of the Ohio State Board of Agriculture for the year ending December 31, 1880:

RECEIPTS FOR THE YEAR FROM ALL SOURCES.

Balance from 1879	$5,259	27
On settlement of Klippart account	375	00
Annual State Appropriation	3,000	00
Citizens' subscriptions to State Fairs of '79 and '80 collected during year	330	00
From sale of admission tickets to Ohio State Fair 1880	16,819	00
From sale of privileges	3,159	00
From percentage on entries	2,993	20
From sale of railroad tickets	6	00
Total receipts	$31,941	47

DISBURSEMENTS.

For old outstanding certificates of indebtedness	$54	00
old outstanding checks of former years	829	25
cash premiums of 1880	11,766	00
printing and advertising	2,270	40
lumber and material	1,330	86
forage and refreshments	1,126	10
members' expenses	1,320	70
labor and assistance	2,686	86
express and freight	469	50
office expenses	226	94

For Secretary (Fleming), one year	$1,500 00	
Secretary (Chamberlain), five months	625 00	
clerk	300 00	
interest on overdraft for the year 1879	5 56	
Klippart account on settlement	284 47	
crop and institute	644 33	
Total	$25,439 97	
From which deduct for outstanding checks of present year	20 00	
Showing amount paid out by Treasurer to be		$25,419 97
Which, deducted from gross receipts as above, shows a balance in hands of Treasurer of		$6,521

LIABILITIES OF THE BOARD.

For outstanding checks of present year	$20 00	
For outstanding checks and certificates of former years	216 95	
Total		$236 95

Respectfully submitted.

D. L. POPE, *Treasurer*.

COLUMBUS, O., *January* 4, 1881.

The undersigned committee, appointed to examine and audit the accounts of the Board as kept by the Secretary and Treasurer, beg leave to report, that we have carefully examined the records, compared vouchers and checks, and find the financial condition of the Board, as here set forth, to be correct—the amount in treasury at this date being $6,521.50.

Respectfully submitted.

LEO WELTZ,
R. H. HAYMAN.
O. P. CHANEY.

In the account of *Printing* and *Advertising* is included all the printing of posters, premium lists and other advertising matter of the Ohio State Fair, and also the amounts expended with the various newspapers throughout the State for the same purpose.

In the account of *Lumber* and *Material* is included the sum of $406.76 for lumber in building pens and stalls, and fitting up the exhibition halls on the Fair Grounds, preparatory to the receipt of exhibits. It also includes, in addition to hardware and other material, the sum of $541.07 for the furnishing of a stationary 50-horse power engine, to run the machinery in the Power Hall Department.

In the account of *Labor* and *Assistance* is included all the assistance necessary to the running of the fair, such as committeemen in the live-stock departments, reporters, assistants in the Treasurer's departments, ticket sellers, gate keepers, etc., assistants in the Secretary's department during the fair, superintendents in the various departments, watchmen, etc. In addition to which there is included the various amounts paid to musical organizations for services during the fair, and the sums paid to short-hand reporters for taking the proceedings of these annual agricultural conventions, and for lectures delivered at the Ohio University.

Under the head of *Forage* and *Refreshments* is included the cost of refreshments served to members and committeemen, who serve during the State Fair, in addition to which is the sum of $581.03 for hay furnished to animals on exhibition, and the sum of $184.32 for straw used as bedding, all of which is furnished exhibiters free of charge.

Under the head of *Members' Expenses* is included hotel bills, railroad fares and other expenses necessarily incurred by members in attending the various meetings of the board, and the conducting of the Ohio State Fair.

The expenses incurred on account of *Crops* and *Institutes* was for traveling expenses in attending farmers' institutes, for postage, electrotypes and other expenses incurred in the preparation and printing of the first exclusive crop bulletin issued by the board.

PROCEEDINGS OF THE THIRTY-SIXTH ANNUAL SESSION

OF THE

OHIO STATE AGRICULTURAL CONVENTION.

Senate Chamber,
Columbus, O., Wednesday, *January* 5, 1881.

The Convention was called to order at 11:10 A.M. by the President, L. B. Wing.

The roll was called by the Secretary, and the following delegates answered for their respective counties:

Adams	J. L. Corryell.
Allen	Samuel Sanford.
Ashtabula	Rep. Thorp.
Auglaize	A. C. Smith.
Belmont	A. T. McKelvey.
Brown	F. W. Dunham.
Butler	Jas. Giffen.
Carroll	E. B. Lee.
Champaign	Wm. S. Foster.
Clark	J. S. R. Hazard.
Clermont	S. J. Rybolt.
Clinton	Leo Weltz.
Columbiana	Jno. Robinson.
Coshocton	J. S. Elliott.
Crawford	A. Monnett.
Cuyahoga	L. L. Pope.
Darke	Jno. Townsend.
Delaware	T. C. Jones.
Erie	C. Caswell.
Fairfield	A. B. Gillott.
Franklin	Chas. C. Walcutt.
Fulton	Jno. A. Wilkins.
Gallia	C. D. Bailey.
Geauga	Peter Hitchcock.
Green	J. B. Lucas.
Gurnsey	W. N. Cowden.
Hamilton	W. H. Hill.

Hardin	W. A. Kelly.
Harrison	O. Slemmons.
Hocking	V. Steers.
Holmes	Daniel Duron.
Jackson	W. T. Washam.
Jefferson	H. Hammond.
Knox	J. C. Levering.
Lake	H. J. Blanchester.
Lawrence	L. W. Ellsworth.
Licking	M. M. Miller.
Logan	F. S. Case.
Lorain	W. A. Braman.
Lucas	S. S. Ketchum.
Mahoning	D. I. Richards.
Marion	A. H. Kling.
Medina	A. L. Clapp.
Meigs	J. L. Carpenter.
Mercer	T J. Godfrey.
Miami	M. W. Hayes.
Monroe	G. W. Steward.
Montgomery	Jno. F. Sinks.
Morgan	Jno. S. Adair.
Morrow	Minard Harrod.
Muskingum	Jno. M. Lane.
Noble	H. R. Smith.
Ottawa	J. H. Miller.
Perry	S. Arnold.
Pickaway	Dill Weigand.
Portage	W. Williamson.
Preble	W. C. M. Brookins.
Putnam	J. Moffett.
Richland	M. Carter.
Ross	T. Spetnagel.
Seneca	H. J. Weller.
Shelby	C. C. Weaver.
Stark	A. C. Wales.
Summit	S. H. Pitkin.
Trumbull	H. B. Perkins.
Tuscarawas	E. S. Slingluff.
Van Wert	Saml. Collins.
Warren	Saml. Irons.
Washington	F. J. Cutler.
Williams	W. W. Derby.
Wood	H. C. Strow.

Judge T. C. Jones moved that a committee of three be appointed on Order of Business for the Convention.

The motion was agreed to.

The Chair appointed as said committee [Judge Jones asking to be excused from serving on it], Messrs. J. C. Stevens, of Hardin county; Dr. N. S. Townshend, of Columbus; and A. C. Wales, of Stark county.

Judge T. C. Jones offered for adoption the following resolution:

WHEREAS, The holding of the Annual Convention of this body in January, during the session of the Legislature, is found inconvenient and objectionable, for many reasons, we recommend that the time for holding the Convention be changed to the first Tuesday of December, annually. We also recommend that the sessions be continued for at least three days, and that the expenses of delegates to the same, should be paid by the several county societies.

He moved the reference of the resolution to the Committee on Order of Business.

The motion was agreed to.

Hon. B. W. Carlisle moved that the Sergeant-at-Arms of the Senate be requested to act as Sergeant-at-Arms for the Convention.

The motion prevailed.

DR. WARDER. *Mr. President and Gentlemen:* It occurred to me that it would be altogether proper at this time, and before this assembly, to make a reference to a loss which agriculture and horticulture have sustained, during the past year, in the demise of Mr. Bateham.

You have, most of you, associated Mr. Bateham in your minds rather with horticulture than with agriculture. But you will recollect the first published serial upon the subject of Agriculture, was begun by that gentleman here in this city. Some thirty years ago he was one of the prime movers in organizing the State Board of Agriculture in Ohio, and had the honor of being elected to that Board, and in that Board was elected to fill the important office of Secretary, and he was reelected a second time.

He was always deeply interested in Agriculture, and took an active part in the organization of that Board. To his credit may it be said, that in that body he was the first to suggest that the United States should have an Agricultural Department, which has grown to great importance in later times.

Mr. Bateham was one of those who would spend and be spent, and he has left little behind him in the way of worldly goods; but has left a charming and most lovely family, most of them young, residing at Painesville, where he removed when he left the nursery near this city.

He had a little fruit farm and a home. By the accident of fire his house was burned over his head a few years ago, and to re-build himself a shelter it was necessary for him to mortgage his little property in the little city of Painesville. This was not a clear loss, but the matter is so that he has left for his wife and children the burden of a mortgage upon his property.

I am not, myself, an admirer of expensive memorials in our grave yards; still, as a dying request of Mr. Bateham, not for his own honor and worth, but for the comfort and satisfaction of his excellent wife and children, he requested that a slab might be erected over his remains after he was gone. The Horticultural Society has undertaken that labor of love, and we come before you to-day, Agriculturalists of Ohio, and ask you to aid us as you may feel in your hearts to do in that matter. We do not desire to have a very large fund, but we need assistance, such as you may feel disposed to contribute. I shall be glad to receive during the day, such contributions as you may see fit to make for this purpose. I have here some copies of the life of Mr. Bateham for distribution. At the funeral of Mr. Bateham, this expression was made by one who knew him well, and it is one which is a great truth, and I trust will be accepted by you all, "That there is scarcely a field or an orchard in the State of Ohio, that has not in it the influence of Mr. Bateham's work."

The principal point, Mr. President, which I wish to make, is, that contributions will be acceptable to me from any of those gentlemen who feel disposed to make such contributions towards a simple memorial to be erected over his grave.

PRESIDENT'S ANNUAL ADDRESS.

At the conclusion of Dr. Warder's remarks, President Wing presented the following Annual Address:

Gentlemen of the Convention: The friends of agriculture, whose presence your partiality has made it my grateful duty to welcome in this chamber to-day, have assembled under conditions which warrant me in using terms of congratulation over the present, and of hope for the future. A whole generation has passed away, since, in the year 1846, Governor Allen Trimble called to order the earliest convention of this State Board of Agriculture. During this entire period no year has passed, in which the members of it have failed to meet in this city to take counsel together in promotion of its efficiency and success.

The discussions held here, and the record of them in our annual reports, have left many germs of thought, that have rooted and borne fruit. The presidents of the various county societies, coming together from widely separated portions of the State, generally men who are experienced farmers themselves, and who are ready to impart their knowledge and discuss their methods, have found in these representative assemblages opportunity both to *revise* their methods and *extend* their knowledge.

Many wholesome laws are the outgrowth of these meetings. The law requiring township assessors to collect agricultural statistics in regard to the amount of the different sorts of farm products, and report the same for publication, was passed in response to a petition from this board. The State Agricultural and Mechanical College, of which we are justly proud, owes much of its efficiency, and probably its independent existence, to the steadfast friends of agriculture connected with our organization.

Many of the early workers in the cause have fallen by the way. Some laid down their burdens at the close of long and useful lives, others were stricken down in their places while yet in the prime of life and action. We recall in grateful remembrance the names of Trimble, Watts, and Sullivant, of Greer, Gardner and DeWitt, of McMillan and Thompson, and with later, keener appreciation of our loss, of the genial and gifted Klippart. But we still have with us many of the men whose good judgment has been available to this society from its beginning. They meet with us at our conventions, and their friendship for us, and their interest in our welfare, survives the severance of mere official ties. In the counsel and support they give, we find an element of strength, and in the solutions of questions which are to arise in the near future, we hope to receive their aid.

The question of the future location of the State Fair is one of these. At the close of the year 1873, when it was held in Mansfield, it was located in this city for five years, after that for a further term of two years, which has ended with 1880. It is probable that we shall be invited to remain—what this convention may advise, what facilities Columbus may be able to offer, and what the board to be elected may determine, are questions whose solution yet remains to be developed.

It seems to be essential to the success of a State Fair, that it be held near a city of sufficient size to accommodate the people who attend it. That the grounds be commodious and attractive. That facilities exist for a speedy and comfortable transfer of visitors between the railways and the exhibition grounds. It is sometimes objected that a permanent location does not afford equal facilities to all parts of the State, but it has been the policy of the chief railway managers here to carry exhibiters' freight free, and make very low rates of fare for one or two days from distant points in the State, and this takes away much of the force of the objection.

The management of the financial affairs of the Board, since 1873, has not been the lightest of its duties.

Coming here, staggering under the loss of more than $16,000 by the failure of the First National Bank of Mansfield, subject to an expenditure of $8,000 for improvements and fixtures upon the Columbus grounds to make them suitable and acceptable to exhibiters, it was considered quite fortunate, that, with the large receipts from the Fairs of 1874 and 1875, they were able to reduce their indebtedness to about $10,000.

But the Fair of 1876 was held in a week of incessant rain, and at the close of that year the amount due for premiums and upon the old indebtedness was something over $16,000. Under these conditions, the Board, for the first and only time in its existence, invoked aid of the Legislature sufficient to reimburse their loss at Mansfield, and thus enable them to cancel all their debts.

In accordance, therefore, with the recommendation of Governor Hayes, a bill to this effect was introduced, amended, cut down to $10,000, and passed; and with this money the old premiums were paid in full, and the holding of another Fair made possible.

In 1877 the skies were bright, a successful fair was held, a heavy premium list was promptly paid, and the old debt reduced to less than $4,000.

In 1878 was held the last fair under the five year arrangement. Columbus citizens vied with each other under the lead of a Columbus president to make it attractive, and it opened with promise of unusual success. But "the rains descended and the floods came." About the only sunshine we saw that week was in the faces of a few business men of Columbus, who came out to us with such suggestion and words of cheer as they were able to offer. Under their advice the fair was continued for two days in the following week, but the effort was but a partial success, and the close of it found us bankrupt,—$9,508.14 in debt and no assets. There was not an active competition for place upon the State Board at the next election. Three of the five old members stood by the ship and were re-elected, and two new men, A. C. Wales, of Stark county, and Richard Baker, of Lorain county, accepted nominations and were also made members. After the duties of the office were explained to them, and they had taken in the situation, they put their names to a note with the other members as cheerfully as if the debt had been contracted under their own management. This note was for $3,500, was discounted at the bank, and the proceeds applied to the payment of debts. The Columbus & Toledo, and Hocking Valley, and the Scioto Valley railways came to our aid with a donation of $1,000, the citizens of Columbus with $2,000 more, and we bridged the financial gulf to the fair of 1879. This was held in a time of great agricultural prosperity, and under favoring skies, and at its close we found ourselves in condition to relieve the members from personal liability, to pay all our debts, and place nearly $5,000 to our credit. For the first time, we were then able to feel that we were free,—the depressing influence of a sense of debt and dependence was lifted, we were able to look about us, and to ask, if besides the effort to hold a successful State exhibit, there was not a larger, broader work to be done.

We saw the Agricultural Department of Illinois and Kansas collecting statistics and crop reports through their own correspondents, scattering over their States new and valuable information in quarterly or monthly reports, while Ohio was plodding along under the system which we had recommended before the days of railways and telegraphs. We saw that in the States of Michigan, Massachusetts, Pennsylvania and Connecticut, conventions and Farmers' Institutes were held in various parts of those States under the auspices of their respective State boards of agriculture, which offered, in their social character and free discussion, advantages which no mere exhibition, however well conducted, can fully supply.

Upon consultation with each other, the members of the Ohio State Board of Agriculture found they were agreed that the time had come to take a step forward, to enlarge their work, and to endeavor to keep Ohio at the front in agricultural work and progress, as she is conceded to be in so many things else.

These views were submitted to ex-members of the society, and from them we received encouragement and valuable suggestions. Then we began to look about us for a Secretary who could take the laboring oar. We knew of Mr. W. I. Chamberlain, of Hudson, Ohio, as an interesting writer upon agricultural topics, and our information was, that he was a practical farmer and an educated gentleman. Not one of us, however, had ever seen him. We suspected that he couldn't be quite right; that there must be some physical or mental infirmity about him, or he would have been present at some of these State Conventions. So the Board decided to send a committee about the first of May to interview him. This committee found him busily engaged in that most useful work of a farmer, putting in tile drains, and the surroundings and the general appearance of his farm suggested the story of the old cynic, who had reluctantly, and under protest, accompanied his family in a trip to Europe; when his attention was directed to the magnificent specimens of architecture in one of the cities of the Old World, he said "yes, but the people who put up these buildings staid at home,—they didn't spend their time and means traveling." Our friend Chamberlain, though not a cynic, had evidently *been staying at home.*

He consented to come to Columbus and meet our board. He talked over our plans with us, and about the 1st of August, 1880, undertook to make our work his own. For a month or more, we made haste slowly, not daring to incur much expense, as any little inadvertence on the part of the clerk of the weather during the week of the State Fair would again leave us financially stranded. But the weather was propitious, the attendance, though not so large as in 1879, was yet sufficient to add something to our reserve. Then our new Secretary, who had, meantime, been adding to his knowledge, by an extended trip to the Northwest, and had verified his plans by a visit to the Agricultural Departments of the different States, began to push with great industry the work of collecting material for our first crop report, and map of the Ohio wheat product for 1880.

That report, with the accompanying map, is before you. It has attracted the notice and favorable comment of the Agricultural press of the country, and the continued call for copies of it, both from within and without the State, has exhausted the edition printed.

In addition to this work, the Secretary has delivered addresses, since the 23d of September, at the Erie county fair, Sandusky, at Tiffin, at Akron, at Springboro, before Farmers' Institutes at Wooster, Lebanon, Oxford, Painesville, also at the Inter-State Convention, at Springfield, Illinois, and other places not now recollected. Nor has his pen been idle, as those of you are aware, who read the agricultural journals of the day.

This increased labor, on the part of the Board, requires increased clerical force in the Secretary's office, and involves increased expense. The extra expenditures, so far, mainly for printing the crop report, for circulars to correspondents, postage, etc., is about $1,000. This does not include Mr. Chamberlain's salary, which commenced on the 1st of August. All this extra expense, including his salary, has been paid to January 1st, from money earned at the State Fair. Our experience in the past would indicate, that the Annual Exhibition will require all the money it can earn to sustain it from year to year. Nor would it be reasonable to expect that members, who have the State Fair in charge, will be willing to give their services for weeks without compensation, and then devote any balance that might remain after the payment of expenses and premiums, to the publication of crop reports, or the payment of salaries in the office.

The Ohio State Board of Agriculture is composed of seventy-eight Presidents of the organized county societies of the State, and not of the ten gentlemen usually spoken of as such. These are really nothing but an executive committee.

It is for the representative gentlemen from all parts of the State, who make up this convention to-day, to approve or disapprove the work of this committee, and to indicate their wishes in regard to its continuance. If they desire the work to go on, and so express it, I am sure the present legislature, largely composed, as it is, of farmers, will see that the moderate sum required to prosecute it is not lacking.

It is gratifying to note that Governor Foster, in his message, yesterday, with broad and comprehensive views of the wants and requirements of all classes of the people of Ohio, has called the attention of the General Assembly to matters which especially interest us, and recommended increased appropriations.

It will always be true that agriculture is the chief occupation of the people of Ohio, and, whatever tends to educate them in their own business, should receive their intelligent support. If knowledge is power, then ignorance is weakness and helplessness. There are probably private estates in Ohio aggregating two hundred millions of dollars, which are held by a hundred or less number of persons—none of whom have less than *one* million. These fortunes have been built up from profits realized by the transportation of the products of the soil, or by dealing in them, or by the manufacture and sale of implements and fabrics of which farmers are the chief consumers. The fuel they burn, the lights which brighten their homes at night, have contributed to the number of these millionaires. But the legitimate pursuit of agriculture has failed to furnish a single one. There seems to be a narrow limit in farming, which, if exceeded, the business fails to be profitable. One who was associated with the early work of this society—a man of affairs, and of fine executive ability—attempted it upon an extended scale, and under the favoring circumstances of cheap and fertile lands, and the result was a disastrous failure. So I am disposed to agree with a practical, sensible farmer, when he says:

"It is foolish to speak of the glories or the beauties of a farmer's occupation. It is, to a considerable extent, independent, it is eminently respectable, and absolutely necessary, but it is not beautiful, it is not easy, nor is it especially profitable, but as we all live by it, let us seek to better and to lighten it." If we work with intelligent zeal to this end, there need be no fear but the great tax-paying interests, of which we are ourselves the chief, will support us to a reasonable extent.

In all the future, as in the past, we may expect to find some patriotic statesman, whose political capital is principally invested in the word "retrenchment," striving to manufacture a cheap reputation as a "watch-dog," and who to this end will strike at every thing which tends to give recognition to a State Agricultural Department, and who would, if he could, deny us rooms, built chiefly by ourselves, and for ourselves, in this Capitol building. Nor need we be greatly distressed, if we find him reinforced by some professional weakling, who delights to air his wit at the expense of the "Granger," adverting to him with a sneer, or indulging in sarcastic allusions to the "sensational," and "exciting" character of our annual reports!

We may safely leave these gentlemen to the consideration of the broader men associated with them, who were, perhaps, themselves, born upon the farm, and have not yet forgotten the "rock from which they were hewn."

The details of the State Fair of 1880 have been published in a bulletin, and are familiar to you. I will not take time to refer to it except to say, that in every department there was a large exhibition, and that in cattle, in farm implements and machinery, it exceeded that of any former year. All the shelter heretofore found sufficient, was taken before the Fair, and sixty new stalls were required and occupied by magnificent herds brought from all parts of the State, and from Illinois, Indiana, Kentucky and Michigan.

In farm machinery, nothing like it in variety and extent has ever been seen upon our grounds. The manufacture of agricultural implements in the United States has doubled within the last ten years, and now gives employment to more than 40,000 men. Ohio leads off, employing 10,248 people, Illinois follows with 8,000, New York with 7,500, and Pennsylvania with 3,000. Twenty years ago all this class of manufacture was confined to the New England States, and to New York. As the west, with its broad acres, demands ploughs, harrows, mowing machines and harvesters, the men who make them are moving this way, and samples of their handi-work we had in great profusion at our exhibition.

I will not stop to speak more in detail, but it was a matter of State pride with all of us, that in every department so much of interest to the visitor was upon exhibition. So much that tends to soften the rigor of country life: Labor saving machinery, improved breeds of all sorts of domestic animals, admirable contrivances for warming and ventilating our houses, conveniences for use in kitchen and dairy, fruits and flowers, properly classified and named,—the whole affording numberless suggestions, worthy to be transplanted and *adopted* in thousands of Ohio homes.

The farmers of our State are disposed to regard the State Fair as their own festival. Unless it is grossly mismanaged, it will continue to be useful and instructive. It will command an attendance which will warrant the award of liberal premiums, and these in return will attract exhibiters and visitors.

The varying financial success of the fairs held in different years at Columbus, has been chiefly due to climatic causes—not to the men who happen to be at the head of the board. The gentlemen who were at the helm in the disastrous years of 1876 and 1878 are entitled to equal credit with those of us who had the more agreeable task of its supervision in pleasant weather and profitable seasons.

A comparison with other states in this regard has confirmed my opinion that our own board, individually, are good managers in their several departments; and I know that in unselfish, united effort for the best interests of the Board on the part of each one of them, there could be no improvement.

As the close of this convention will terminate my official relations with these gentlemen, I desire to express my appreciation of their good will, at all times extended to me. Sensible that in many ways I have stood in need of their indulgence, we have nevertheless worked together in harmony, and the remembrance of our pleasant association will remain with me in all the years to come.

Mr. Stevens, from the Committee on Order of Business, made a report, which was accepted and adopted.

The Treasurer's report was then read by D. L. Pope, Treasurer. (See page twenty-seven of the transactions of the Board.)

NOMINATION OF CANDIDATES FOR STATE BOARD OF AGRICULTURE.

The next business in order being the nomination of persons to be elected to fill the vacancies occurring in the State Board of Agriculture, the following nominations were made:

Judge T. C. Jones, of Delaware, in placing in nomination L. B. Wing, of Licking county, for re-election, spoke as follows:

I am aware, gentlemen, of the rule practiced in old times, of letting a man go out of office when his term had expired. I am in favor of that unless he is a remarkable person, as, for instance, my good friend, Maj. Millikin. In listening to the address of our President, considering the work that the Board have undertaken, and the indications in that address of the appreciation of that work, and his capacity to understand it and execute it, I am of the opinion, very decidedly, that the interests of this Board would be subserved by his continuing in the Board another term. I am in favor of it for another reason—he comes up to the old Jeffersonian mark, of being competent, and honest, and all that.

A MEMBER. Yes, and he has been faithful to the constitution.

JUDGE JONES. Yes, but I am in favor of it, also, because he comes up to the Granger requirement, of having the office seek the man, and not the man the office.

MR. WALES. I rise with great pleasure to second the nomination of Judge Jones. No one who has not been in the Board can so highly appreciate the services of Mr. Wing, as a member of the Board. I trust that this convention will force upon him the acceptance of the office.

I also, if you please, Mr. President, announce as a candidate for re-election, Charles Smith, of Marion county. He has, for a long time, had the charge of the machinery department at our State Fairs; and all who have noticed that department frequently have admired his management of it.

D. L. POPE. I do not know that the nomination of Mr. Wing needs anything more than a second, but since our friend Wales got the start of me in seconding the nomination of Judge Jones, I wish to be allowed to confirm that. And I wish to state to the Convention that the Board fully feel in this matter as represented by Mr. Wales, and that the Board, this morning, have presented President Wing a memorial, asking him to consent to remain as a member of the Board. And we feel the necessity of his presence and influence with us. I think he is a whole team and a whole Board in himself, gentlemen. We feel our weakness compared with him, and we hope the Convention will join the Board, and insist upon Mr. Wing's accepting the position.

The members of the Board have memorialized, unanimously, in connection with the Secretary to-day, that he will consent to do so.

Charles D. Baily, of Gallia county, was next put in nomination.

P. Murphy nominated W. H. Hill. He spoke as follows:

I rise to present to this Convention the name of Col. W. H. Hill, of Hamilton county. He is President of the Hamilton County Agricultural Society, and took hold of that organization when it was in debt, in fact had been abandoned, and to-day he has that debt wiped out, and the old buildings torn down, and erected some very fine new buildings, and has money to spare. As I retire from the Board to-day, Southwestern Ohio will be without a member unless he should be elected.

J. C. Stevens, in nominating W. S. Foster, said:

I desire to put in nomination W. S. Foster, of Champaign county, and I wish to say that he comes from a section of the State that has never had a member of the Board. And I do it at the request of his immediate neighbors, and those who have been associated with him. I am informed by every member present from the Central Ohio Fair Association, with which he has been connected for a number of years, that they have never had a member who has been more useful or more valuable. In addition to that, I may say, that he is the Vice-President of his own county society, and has been compelled to serve in that capacity a number of years.

From the little acquaintance I have had with the gentleman, I can vouch that he will discharge the duties with credit to himself and to the Board.

A member nominated John C. Levering, and said:

In behalf of the Agricultural Society of Knox county, I have the honor to present his name. Mr. Levering has been the President of the Knox County Society for four years. He is an energetic, untiring worker, and is devoted to agriculture. He is a man of proper judgment, and proper energy to be a member of this Board, and I trust, if he should be elected, you will find my words true. No man can be more active or more energetic in the cause of agriculture than John C. Levering. Knox county has been a heavy contributor to the State Fair every year, and has never had a representation in the State Board, and I trust Mr. Levering may be elected to such a position.

G. F. Newton, of Holmes county, was next put in nomination.

John Markle, in behalf of the Agricultural Society of Hancock county, nominated Judge S. B. Huffman.

John Townsend, of Darke county. was nominated.

Hon. Peter Hitchcock put in nomination for re-election R. Baker. He said:

I announce the name of Mr. R. Baker, of Lorain county, for re-election. Mr. Baker is a member of the Board, and his first term expires at the present time. Mr. Baker is a man well qualified for the position. He was a very efficient helper of the Board for years before he was chosen a member of it. He is a man practically and thoroughly well qualified as a farmer, and identified with the agricultural interests of the State. I think it would be a very great loss to the Board if Mr. Baker should be dropped out at this time. I hardly wish to make that remark, because I scarcely think that there is any idea of doing that.

Judge T. C. Jones, of Delaware, put in nomination Hon. Columbus Delano, remarking, that it was well known that for many years Mr. Delano had been practically engaged in agriculture, although engaged in other duties also.

The President. There is one thing I desire to say before the adjournment. It is seldom that any person, in any capacity, perhaps, has received a more flattering endorsement or testimonal than I have been the recipient of to-day. I assure you, gentlemen, I appreciate it as warmly and heartily as a man possibly can. And I have this to say: Of course I understand better than any one else the nature of my private business, and it is true that it is such that it will take me, during the coming year, most of the time out of the State. While it would be a very great pleasure for me to be further associated with the gentlemen who have so kindly spoken of me here to-day, it is not for the interests of this society that it should be so—on account of the reason I have stated—my absence from the State. It certainly would not be for the interests of the Board to have a place occupied by a nominal member, when there is plenty of material here in the State to do the work, and men who are capable and willing. And, therefore, in making up your minds as to whom you will vote for, I must peremptorily decline the use of my name in this Convention.

The Convention then adjourned until 2 P.M.

AFTERNOON SESSION—2:30 P. M.

Upon reassembling, Judge Jones stated in reference to the nomination of Columbus Delano, that he had made it without any authority, and owing to the fact that the Agricultural Society of Knox county had decided upon another man, he thought it proper that he should withdraw the name of Mr. Delano.

The President announced that the first thing in order would be an address by President Orton.

A MEMBER. We come down here to transact certain business. I will give my own experience, and at the same time I think it will agree with that of some others. Some have the privilege of remaining or of going home. Others are obliged to return now, before the Convention transacts the main business for which members are here—to elect certain parties as members of the board. I know of three persons here who are obliged to go home and cannot remain. I do not know how many more such there may be. If we could stay, it would compel us to remain over another day to transact the business. It seems to me it would be better if we would transact the main business for which we came, and then those remaining in the Convention could stay here and discuss subjects that come before it, while those who desire, or who are under the necessity of returning, may do so. To say the least, I think this might be improved upon in the future.

JUDGE T. C. JONES. I understand that the order of business, as reported by the committee, in itself announces the time for attending to the business to come before the Convention. And I think in that report it was to precede the address. There are the ordinary routine business items of the Convention, which should be first attended to, because, as the President very properly stated in his address, this Convention is composed of delegates from the county societies, constituting the State Board as usually understood, and as the law says, they are to meet here for consultation and interchange of opinion in reference to the advancement of Agriculture.

The Secretary, by request, read the order of business as stated in the report from the Committee on Order of Business.

JUDGE T. C. JONES (After the reading of the report). Then, if that is the order, I don't know what we are here for. If these things are to be cut and dried by some others before we get here, I know not what we come here for.

A paper on "Sanitary Science in the Farm House", was then read by President Edward Orton, of the Ohio State University. It will be found further on under the head of "Farmers' Institutes", since it was also read at some of these meetings.

Judge T. C. Jones, of Delaware, offered the following resolution:

Whereas, The holding of the Annual Convention of this body, at the date now fixed, during the session of the Legislature, is found to be objectionable for many reasons, we recommend that the time of holding this Convention be changed to the first Tuesday in December annually; and we also recommend that the session of the body shall continue for at least two days, and that the expenses of the delegates to the same shall be paid by the several county societies.

Judge Jones, in support of the resolution, spoke as follows:

Gentlemen: I shall occupy your time on this resolution but for a very few moments. After an experience of many years in this body—eight years, I believe, in the board itself, and I hardly dare to state how many years in connection with this Annual Convention—I am satisfied that the change proposed by the resolution would be greatly beneficial. The law on the subject states that this State Board of Agriculture shall have this annual session, and the present law provides it shall be in January. They were formerly held in December, and it provides that this Convention shall be composed of the President of the several county societies, or their delegates duly appointed by the county societies, who shall be, for the time being, members of the State Board of Agriculture. That is, you who are here to-day members of the State Board of Agriculture, and the members of the State Board, as it is generally called—and as very aptly said by the President in his address this morning—constitute but an Executive Committee of the Board, composed of these members. Now, the law further states that this annual meeting shall be for consultation and exchange of opinion in reference to matters of interest to Agriculture. It is not the idea that we are to come here simply to listen to addresses, though addresses, if there is time, are of very great profit. But the idea is that these county societies ought to have intelligence enough, and experience enough, which, if communicated, will be of benefit to each other. But if the session should be held at all, if our deliberations are of any value, if they are to be of any benefit to others, they should be in some shape conveyed to the public. Now, we meet here on the first week of the holding of the session of the Legislature. This happens to be an adjourned session of the Legislature, and it is not a matter that ought to occupy so much attention as the first meeting of the Legislature when they have all the officers to elect, and when there is such a multitude of citizens in Columbus who attend such things. But even now, the interests in matters pertaining to the Legislature of the State, are such as to attract more or less attention, and divert the attention of those who come here to attend this Convention. Not only that, we have in session about the same time, the Short-Horn Breeders' Association, the Sheep Breeders' Association, all bringing people here from all parts of the country about the same time.

Now, we all recognize that the great source, the great means by which information is conveyed to the people, is by the press; and our proceedings, if they are of any value at all, should be reported, and should get to the public through the press. They are published in our annual reports, but the reports are limited in number. There are as yet no ample means for their distribution among the people who are to be profited by them. And, if they were properly distributed, these reports made of our proceedings to-day will not be out for one year from this time. But if the substance of what is here said was published in to-morrow morning's paper, it would be read all over the country, and, if there was anything of interest in our proceedings and discussions, it would attract attention at once. But look at the papers this morning. For instance, here is the Governor's message, which occupies much of the space that would be allowed ordinarily to the report of news. And the proceedings of the Conventions occupy, possibly, not more than two or three inches in a column. Well, now, why should we meet here at this time? There is a reason given, that it is difficult to get a proper hall. But our meeting here is inconvenient, not merely to the members of the Legislature, but inconvenient to the public business that we are in this hall to-day. And the Legislature is just as much a thing of the farmers as is this body here. And here are the desks of these members, who are in the habit of coming here to get their mail every day, and we here are interrupting them, and we feel in a hurry to get through and get off. You know my friend here said he wanted to vote and get off. Now, it is a strange idea, if my friend will allow me to say it, to vote and get right off, as if this Executive Committee should have charge of the business the whole year without any advice or consultation from this body. We ought to devote more time to the important business coming before us. If we would nominate members of the Board to-day, and vote on them to-morrow afternoon, how much more likely we would be to make an intelligent choice than by hurrying it through, as we are compelled to do.

Now, what reason is there that we should not meet here in December, as suggested by the resolution? By meeting in the first week in December, there would not be the meetings of these various other societies and the Legislature to attract the attention of members. and whatever of value should be introduced to the body could be properly considered by those who have practical experience, and that is what we need—the practical experience of the farmers that may be gathered together. That is needed more than the theories of scientific men, and would doubtless be of much more benefit. Now, I am sure I cannot see any reason, except the reason that people want to come here and see the Legislature. If that is the object of a man coming here, he would better not come; he would better stay at home. This thing of killing two birds with one stone is a pretty good idea, but, if you want to kill a dozen birds with one stone, it is a pretty difficult thing to do. And if a man wants to attend the Convention here, he will find about as much as he wants to do to attend to that alone.

It is false economy, in my opinion, for a man to want to come down here to see the Legislature and visit the asylums, and then vote for anybody he may wish for a member of the Board, and then go home. We are to be here, if we comply with the law, for consultation on matters of interest to our vocation. And now, without detaining you, gentlemen, I put it to this Convention, to your good sense, whether, if this is worth attending to at all, it is not worth coming here for that special purpose, and that we ought not to be in a hurry because we may be occupying this hall. Would it not be better for us not to be in anybody's way, or have anybody in our way? I hope that this body will insist upon trying this experiment, and let us have next year a Convention that will be really for the interchange of opinion. And I hope that our practical men will come up, and that we will have a meeting here that will continue for at least two days. I hope that gentlemen who have had experience in these matters will express their opinion upon this subject, and that the matter will be properly disposed of.

Hon. Peter Hitchcock. I wish to ask the Judge whether, in his recollection, some years since the Convention was not holden in December, and if so, whether there was a greater interest in the Convention at that time, and whether the business of the Convention was more thoroughly done than it is now?

Judge Jones. I will answer the gentleman, I think there was a greater interest in the Convention then; but I do not think that was the reason of it. This body, like every other, has knowledge to disseminate, but it does not attract so much attention, probably, as it ought, or as it did, perhaps, some years ago; but when the Convention was held in December, it was then held at the time the Legislature was in session, as it is now.

Mr. Hitchcock. I doubt the correctness of the Judge's recollection.

Judge Jones. I think I am correct, for there were one or two years when it was held when the General Assembly was not in session here. It was changed in order to have it come at the time of the meeting of the Legislature.

Mr. Hitchcock. Another question I want to ask; that is, whether the gentleman over here will probably be in any less hurry to go home under such circumstances than he is to-day?

Judge Jones. I don't know that that question is pertinent to the question we are considering. The gentleman can answer that question if he chooses.

Mr. Hitchcock. I understood the Judge was making a point, that they want a change of time, so as to have time, and that the people would not be in a hurry, as now, to go home.

Judge Jones. Yes, sir, that is one object. As it is now, when we meet but for one day, there seems to be a desire to go into the election of officers, and then the members want to go home. I do not believe that the interest would be less, but greater; and I believe that in this matter of election we should have a great deal more time. But I will answer the gentleman's question. I do believe that if it were so, that gentleman would attend this Convention at a special time, when other matters did not interfere. It would be of importance enough, and attract interest enough to have them attend two days; and I believe gentlemen would stay here whether the gentleman referred to stays or not.

Mr. Hitchcock. I have no desire to continue this discussion at any great length. But the proposed change, I understand, is asked for, that a better interest be secured, and which it is claimed will be by changing the time of holding the Convention. But, as the Judge and other gentlemen of this Convention very well know, the time originally was in December. The Judge says it was changed, after meeting in convention some years, so as to be held at the time of the meeting of the Legislature. That may be true; but after the meeting of the Legislature in January, this meeting was held in December, and it was changed to January. I suppose the reason was—and my recollection is, it was the reason for making the change—that it was found that after the time of the meeting of the General Assembly was changed to January, the meeting of the Convention was not of as great interest as when held at the time of the meeting of the General Assembly. Therefore, it was changed to regain the interest that had been lost. Now, the Judge gives as one reason for the change, the difficulty of obtaining place for the meetings of the Convention, and refers to this chamber and to the interruption of the session of the Senate, by holding the Convention here. Now, I suggest, Mr. President, that there will be just the same difficulty in obtaining a hall in holding this Convention in December, that there is when it is held now, in getting one. Because, the Judge knows that this hall is not in condition for a Convention in December. Everything is out of order then, and it is only put in condition on the meeting of the General Assembly. There is no one here to put the halls in order at the time he mentions, and a hall would have to be obtained outside. The Judge may say there is no force in that; that the General Assembly will provide for the meeting of this Convention, and for the halls being put in order. But there will be a difficulty, as there is no officer here at that time to take charge of it. There is no one here to attend to the warming and lighting, etc., as there is on coming together at this time. So it seems to me, Mr. President, there would be just as much difficulty in obtaining a hall at that time as now. I have not the least doubt the citizens would be willing to find a place for the meeting of this Convention now, and at any time of the year. I suppose, if this Convention holds over to-morrow, they would not desire to ask the use of this chamber to sit in. I think a place could be obtained without difficulty elsewhere, now or in December. But I am inclined to think that the time it now meets is the better one. I think the experiment has been tried in holding it at another time, and found to be a failure, and was changed to now as the better time. And I believe it, because I have attended the meetings of this Convention under the old regime, and have attended them since, and I think the meeting of this Convention in each successive year has increased in interest, and not lost its interest. I think there is more interest taken in the election of members of the Board, and more interest taken in the discussions.

I am not prepared to say now (as the Judge is out of that Board at present), that the Board was better organized before or since. I think it has been pretty well made up all the time, and I know it was pretty well made up when the Judge was a member of it; but I do not think, from the reasons given, Mr. President, that it is important to make the change. The Judge assumes that these men have come together, representing the various counties of the State, at this time, because the Legislature was in session, and that they want to see it. He says, if the time fixed was at an earlier date, when the Legislature was not in session, then the members here will be interested in the subject of agriculture and mechanics, which they represent. But that now they are interested in the meeting of the Legislature and visiting the asylums, etc.

Now, I put it to you, gentlemen, whether your object in coming here is such as it is stated by the Judge to be, or whether you have come to advance the interests of agriculture and mechanics in coming here. Was this your object, gentlemen, or did you come here to see the Legislature in session? If you came here to see the Legislature in session, I regret very much that the Senate has given you this chamber to-day, because they ought to have been in session and in running order, instead of taking a part in your deliberations.

Now, Mr. President, the resolution which the Judge introduces, has, I think, three distinct objects named in it, any one of which may be properly considered. I ask, therefore, that there may be a division of those questions. One relates to the changing of the time for holding the Convention; another is, that the Convention shall sit at least two days; and the third is, that the county societies shall pay the expenses of the delegates; which I think would be a very good arrangement if the county societies will do it. I guess they usually do it now. They always do so in our county, and I suppose they do elsewhere; but these two latter propositions have no connection with the first one—that of changing the time for holding the Convention.

Judge Jones. Will the gentleman allow me to make a correction? He misrepresents me.

Mr. Hitchcock. Not knowingly, Judge.

Judge Jones. Well, it is a misrepresentation. I have not intimated that these gentlemen came for any such purpose as he states. If he had been on the stump I would not have been surprised to hear him make such a statement. I said that one reason of holding it now was, that they might be here at the time the Legislature was here. The people like to come here and see the Legislature.

Mr. Hitchcock. I hope the Judge will allow me a word again. I speak rather rapidly, and sometimes I do not get my words as well arranged as the Judge does. I do not say the Judge wished to be understood so, but it was almost inevitable for me to draw that inference from what the Judge did say.

Judge Jones. He has made it worse than what he said before.

Mr. Hitchcock. Worse, because more exoctly true.

Judge Jones. All that remains for me now is, like Wade Hampton, to give the gentleman my address! [Great laughter].

Maj. Millikin. Mr. President, I will have to confirm the statement, that when the change was made from the first Wednesday in December to the first Wednesday in January, that it was made because gentlemen had a desire to come here and see the Legislature when they were in session, so that they might have association with the distinguished gentlemen from various parts of the State. That was the prevailing motive that prompted the change.

Now, I have been familiar with this Convention for the last twenty-seven or twenty-eight years, and I say that one of the most interesting discussions that has ever taken place in this Convention, took place when we held the Convention two days. There were many subjects brought up, of exceeding great importance, and were very well discussed by the members. And I reollect Dr. ———, I have forgotten from what county of the State,—but I recollect that he insisted that this Convention should be held two days; and such was the result of the two days' meeting at that time. I have no doubt at all, that our deliberations would be very valuable if we would come here to consult with each other upon the interests of agriculture.

Now, I have no doubt some get paid in coming here. They want to come, some of them, perhaps, partly for business; and they come to this Convention, and attend the election, and then go off.

I think, however, if we would come when our minds would not be distracted by the various interests that occur at this time, there would be more interest taken in this Agricultural Convention.

The President. I think, if the gentleman will refer to the report of last year, that this was to be a two days' Convention, unless we get out of work.

Mr. Pope. Has this chamber been appointed us for the purpose?

The President. No, sir; another hall.

Mr. Hitchcock. I want it distinctly understood, gentlemen, that I do not object to a two days' meeting.

Mr. Pope. There are very good reasons on both sides of this resolution. There is one reason, evidently, that there are many counties represented in this Convention, and, as at former ones, many of them are represented by Representatives in the House and Senate. The President of the county societies, perhaps, does not get here, and, perhaps, would not come; but they are very well represented by the members of the House and Senate here, and it gives us very good ability, in fact, to aid us in the business of the Convention. That is one good reason. But one of the strongest reasons that I see for the motion to prevail, is, the publishing, which would be a matter of some importance, coming at a time of the year, perhaps, when the papers have not abundant news, and would, probably, publish the business of the Convention more fully than they would at this time; and that is about the only reason I see in favor of the change. The question, evidently, has two sides; but I hardly know, myself, how I would have it.

M. J. Lawrence. As to the second part of this resolution, I think there is no opposition. I am heartily in favor of it, and have been ever since I have attended these Conventions. I think they should be held two days. One day is entirely too short a time in which to discuss and materialize the important matters likely to come before this body. But I think the change from the first Wednesday of January to the first Wednesday of December would be decidedly to our disadvantage.

There is one point, especially, that has not been touched upon in the discussion; and that is, the difference in regard to the employment of Agriculturalists at the two different seasons of the year. We all know that this is, comparatively, the season of leisure to the farmers, and very much more so than the first week of December. I am decidedly of the opinion that our attendance is very much larger this week than it could be, or could be expected, the first week in December. I do not believe that the argument is, at all, sustained by the Judge, that the attention of members who come here is called away to see the Legislature, or to see anything else than what is going on here. I do not believe their attention is called away by anything else at this time of the year, any more so than it would at other times.

I am very glad to say here, that our General Assembly is gaining in the representation of the Agriculturalists of the State. There are a larger number of them each year becoming members of that body, and they are the class of men we want in this body, and for that reason I think it is very desirable to leave it as it is now. As Mr. Pope has said, they are able assistants to us, and augment our numbers, and increase the interest in our discussion, and I hope that if the question is voted upon, that it will be divided, as has been requested by Mr. Hitchcock. There certainly are two distinct questions involved in it. One of them, which I think should be carried —the part referring to the holding of the Convention two days—but I don't believe the other part should be.

J. C. Stevens. I propose to ask your attention but a moment. I think Judge Jones has covered the whole field. He not only made the question, but has answered it. There is no question in my mind, that if we have any interest at all in Agriculture, and the advancement of that industry, we can well afford to spend two days, or more, in the discussion of matters pertaining to it. There are many reasons why we should not come here at this time. We are intruding upon the members of the Legislature, and we are obstructing our own business while we are obstructing the work of legislation.

As my friend Pope said, there is one argument in favor of it, but I could not see the point that we obtain the assistance, co-operation, counsel and advice of members of the Legislature by having the Convention held at this time. The very fact that many of these members were delegates here is known to many of you. Well, now, if a member of the Legislature, who is a delegate to this Convention, is not enough identified with the interests of Agriculture to come on the first Wednesday of December, as well as he would at this time, he is not competent to act and serve as a representative of his county society. But I think he will attend both. And, Mr. President, as was remarked by Judge Jones, at that time there would be space in the papers to publish our proceedings, and we could spread it out then in the newspapers, and thus all the transactions of the Convention be given to the public. And how important it is, that the transactions of the Convention, if they are of any good at all, should go immediately before the people, because we know that now our Agricultural reports are not read by one-fourth, perhaps, of those who receive them.

The best essays, the best articles, are not read. On the other hand, if they come through the medium of the press, and come directly before the people, they would be fresh matter, and would be read, not only by Agriculturalists, but by many others. Reports of our discussions being in the newspapers would necessarily cause them to be read. I cannot, however, think any one would desire to oppose this measure as proposed in the resolution from any other motive than pure and conscientious motives. I think it would better serve the interests of Agriculture to fix the time so as not to interfere with the time required by the Legislature. There are many friends here who will meet the members of the Legislature, and they will be button-holing the members of the House or the Senators, if they are parties who desire some local measure passed, and thus their attention is divided and diverted from the business of the Convention, and consequently they do not give the Convention that attention that they would if they came here for that special and single object.

Mr. Hitchcock. It will be remembered that I asked for a division of the question. I desire to say that this part of the question, if it should be adopted, in order to be carried out would require a change of the law, while the other parts of the question would be within the power of the Board of Agriculture. I ask that the provision of the law in reference to the time of the holding of the Convention be read.

The Secretary then read the section of the law relating to that matter.

Judge Jones. I would like to say another word on this subject. As Mr. Hitchcock knows, there would be no difficulty in arranging the hall. It might be fixed by the second week in December, or perhaps the third week. As to the hall, however, I understand from a gentleman here that this could be attended to during the recess of the Legislature. And I learn it has been used for various purposes during the recess. There can be no difficulty in having the carpet, etc., all in readiness by a certain time.

As to the second proposition, Mr. Hitchcock knows that there is no use of talking about meeting in this hall for two days when the Legislature is in session. Now, I suggest to my friend, who talks to farmers here about their work—this gentleman editor here—who says they are not through their work by December, it is much easier for me to be away at that time than it is now. This is a bad time for many of these men to be away from their stock. There is no more convenient time of meeting than in December.

I wish to say, in reference to the last clause, that it is also important that the different societies should be represented, and I think the expenses of their members who come here should be paid, and I would be exceedingly glad if the experiment should be made of having the Convention in December, and we would see then how it would work. By the way, I would like to know what is the reason for meeting at this time, if it is not to meet when the Legislature is in session. Now, sir, why do they want to meet when the Legislature is in session? My friend says we have a better attendance. But why will we have a better attendance?

MR. HITCHCOCK. I only desire a moment. The Judge said before, you all recollect, that it was to see the Legislature in session. Now that, I say, is not true at all. These men who came here would not admit that they came here to see us in session, but that you could get a better attendance when the Legislature is in session. I have no doubt at all that that was the reason for the change when it was made. There are a great many societies in the State whose delegates should attend at any time; and this ought not to be so, but there is no question about it. We know it to be the fact, that they never send up their members when the Legislature is not in session. They get a member of the Legislature from their county, frequently, to represent the county society, and he makes just as good a representative as the President of the society, in very many cases, at least. He has not answered me. He says, however, that they would not come here at this time, if it were not to see the Legislature.

JUDGE JONES. I did not say so; my friend is mistaken about that; but I say that when a society selects a man to represent it in the State Convention, if he cannot come here at any other time than when the Legislature is in session, he is not a fit representative of that county, and no one here would pretend to say that he is.

MR. HITCHCOCK. It is true, I believe, that the attendance is better at this time. It is a time when these things are being done, and when men are coming to this place for one purpose and another; but they are more apt to come for another purpose, and especially for the meeting of the Legislature, which will bring many together, and they prefer to get together when they are coming here. And no matter how deeply they are interested in the work for which they come, they would rather come when they can see other men coming here, whether it is for legislation or other business. Now, the Judge thinks we would get a better attendance to have it in December, and wants to try the experiment. Now, I asked the Judge if we did not start out holding the Convention in December, and whether the attendance has not been better subsequent to the change, and he said he could not tell. Now, my experience is, and I have been an attendant at most every one of the Conventions for a number of years, and I submit that these discussions have been gaining in interest and the attendance increasing each year; and there is at this time more interest, perhaps, than in previous Conventions; and so long as the interest has increased, and so long as the efficiency is not in any way impaired, but rather increased, and so long as the agricultural exhibitions are growing larger, and this

Convention increasing in efficiency, so long as these things are so well, they are doing well enough. Why should there be any change?

Mr. Lawrence. Mr. President, the editorial gentleman to whom the Judge referred, is willing to let the question be settled by the farmers who are here, whether they are not more busy the first week in December, than the first week in January. We will let that matter rest there, and I ask no further answer.

W. B. McClung. The proposition of my friend Hitchcock, that we would get a better attendance, appears to be one of the arguments of those who are discussing this question, all the way through.

Judge Jones. If my friend is going to try to make that statement apply to me, I want it understood that that is not my argument at all.

Mr. McClung. If my friend will wait one moment, I will explain myself so that he will stand right. I said that was one of the arguments used in the discussion pro and con, and it seems to have been one of the chief arguments made. But I ask if that is the question for this Convention to decide entirely. Is it not questions growing out of it? What shall be done; what shall be accomplished; what good can we do for the object for which we meet? And if we give these matters better consideration, and more careful consideration, and prepare for this coming together, so that it may go into our annual reports and diffuse better information, it seems to me these are the points we ought to consider.

Now, one word in reference to the farmers of Ohio, that my friend, the editorial gentleman, and other gentlemen have discussed between themselves. I believe that the farmers of Ohio have arrived at that point that they can come here to look after this Convention in December, or January, and I believe myself that they can come here quite as well in December as in January. Now, the argument has been made as the results of the past change, that gentlemen will attend better, but I think there is no force in the argument from that stand-point.

We are certainly advancing in such matters. Why, we had in the last month the Granger Convention here in this city, which continued in session, I believe, about a week, and their deliberations were matters of great interest. They were farmers, and were here taking hold of the questions that pertained to their business. That shows that such meetings can be held when there is no General Assembly in session here, and that it does not depend upon that, or anybody else. Now, gentlemen, I believe we have come to a time in the Agricultural and Mechanic arts of Ohio, when it is well, at least, to take up this question, and see if there is not enough in this matter before us to call the attention or retain the attention of citizens who come here to Columbus for anything else but to take in hand the matter we are to consider, in careful deliberation. I believe we ought to do this. I believe we can do it, and I believe it would be of interest and decided advantage to us. Now, let us take this question, and the whole argument that has been made is about getting this hall. It is likely true that we might not get it, and Judge Jones, and gentlemen here whose business it was to attend to this matter before, have put the question before us whether we were going to be able to get the hall. I, gentlemen, will venture myself to say, that citizens of Columbus will see about our getting a hall. There will be no difficulty in getting a hall for us for this purpose. If the State of Ohio and these Senatorial gentleman are not willing, and are not going to give us a chance to come into this hall, very well. We have across here the City Hall, the Board of Trade Room, the Council Chamber, and other rooms there that may be had, and I assure you they will always be at your service—at the service of the Agriculturists and Mechanics of Ohio—without any question at all.

Judge Jones. "Without money and without price."

Mr. McClung. Yes.

Mr. Caswell. I believe it is a grand mistake to suppose that those living at a remote corner of the State can easily attend this Convention at any time. I know of just one change, gentlemen, which, in my opinion, ought to be made; that is, to make this Convention to be held near the time of the lectures on Agriculture, and topics relating to it, delivered at the University in this city. There is a great deal of regret by some, that the lectures should not immediately follow this Convention, so that when persons come here they could spend, probably, a week or more at the lectures. I would advocate a change of the time so as to make the Convention a week later.

Mr. Irons. The first week in December is a more busy time than the first week in January. The farmers are then engaged in corn-husking, and at this season of the year they have more leisure, and I think we are more likely to have representatives in attendance from the different counties.

Maj. Millikin. I think if we come here to this Convention, we should come to represent the different counties of the State. I think we can come here as well in December as at any other time. I think the careful, prudent husbandman has his affairs about as well arranged in December as at any other time. I came five or six years when my expenses were paid, and I have come here since upon my own hook when they have not been paid. It seems to me there can be no question so far as that matter is concerned, and I think we should make the change, and come here, and occupy two days. These gentlemen are not prepared to make a creditable programme to be carried out, and complete all in twelve hours' time, or in less than a day. We have only from 11 o'clock to-day until 9 o'clock to-night, probably, and in this time all the diversified interests of Agriculture are to be considered. The organization of this society is to be considered, as well as the wants and interests of the Agriculture of the people. How are we going to consider that? Just by coming here and going through an election? Now, in Massachusetts, and in all the New England States, their Agricultural Conventions continue in session at least two days. Some of them as long as four days, discussing the various important questions that come before them, and such important questions as we have heard discussed here by President Orton, and others. Is it not to our interest, when we hear such considerations, which come from matters of such vital importance? Why, gentlemen, we ought to have half a dozen just such addresses as we have heard from him. And I say we can devote two days to the interests of Agriculture here, and the man that is not willing to come here and do that is not a fit representative of the farming interest of this country.

Judge Jones, by permission of the Convention, was allowed to substitute the second Tuesday of December for the first Tuesday.

The question was then taken on the first part of the resolution, which was again read by the Secretary. The vote having been taken *viva voce*, and there being doubt as to the result, a call was made that the vote be taken by counties.

The vote was then taken by counties, resulting as follows: Yeas, seventeen; nays, forty-three. The remaining parts of the resolution were then read by the Secretary.

Mr. Pope inquired if those portions of the resolution carried, whether it would apply to the present Convention. He was answered that it was not intended to apply to the present Convention. If, however, matters before the Convention were considered of sufficient importance, it could be continued two days.

The vote being taken, the two remaining portions of the resolution were agreed to.

Dr. J. A. Warder then read a paper upon the subject of

"STATE BOARDS OF AGRICULTURE—THEIR PROPER WORK."

It will be universally admitted, that the organization of Agricultural Boards in nearly all of the States, has been of great service in the advancement of our art. Such beneficent results must necessarily flow from the systematic and concentrated efforts of men, usually selected for their superiority and intelligence in the interests to be benefited by their care. The earlier Boards were appointed to take a general oversight and care of the great interests submitted to them, and report the results of their observations. This was, for a time, the course which they pursued in the older organizations; and a good work it was, and still is, where it continues to be practiced.

Among the first of these organizations to lead off, in the way of holding great shows of Agricultural productions, under the title of "State Fairs," was New York.

The early introduction of continuous lines of rail, as well as of canal and river, connecting the wide extremes of the Empire State, enabled the farmers and citizens to concentrate the products of their industry, and the State Fairs soon became famous, under the guiding hand of Secretary Benj. P. Johnson, supported and aided as he was, by some of ths best and brightest minds of that State, who were deeply interested in Agriculture.

Ohio soon began to feel her strength, and desiring not only to be a competitor for the honors, but really wishing to advance the interests and improvement of her farmers, a similar organization was effected; and, taking New York as a pattern, the holding of State Fairs was made the *leading idea.* The other appropriate work of such a body of men, the custodians of the great interests of Agriculture, was never pursued to the extent that, in the estimation of some, would have been desirable, and that might have been effected by commissions appointed to investigate and report upon special topics. The Insect reports of New York and Massachusetts, for instance, which have proved of so great utility, from the hands of Messrs. Fitch and Harris, have no counterparts in our annals. We have established no *Experimental Stations* where great and small questions could be answered, for the benefit of the mass of our farmers.

These Fairs have been of great service, however, in many ways. They have brought together the people from distant sections of the State, to view the varied productions of our farms and factories, to interchange views on various matters connected with their pursuits; and, though very different from serious academic study, we have, nevertheless, been justified in considering these great gatherings *educating* agencies of great value.

Many other States have followed suit, and the State Fairs have been very generally instituted; as this is usually considered the proper thing for a *State Board of Agriculture* to do, while too often the other grand work of such bodies has been entirely ignored.

The indications now are, that we, of Ohio, may hope for a change in the policy of our Board of Agriculture. The organization and holding of *Farmers' Institutes* is a good beginning. The arrangements already made, and the earnest given, that we are to have valuable *crop reports*, all encourage us to hope that our Board is determined to take a *new departure.* Now, let us have *experimental stations* set up at different points, where thorough investigations may be carried on, where specialties may be pursued, and from whence the results shall be reported, and edited by the Board—and we may hope to receive from their hands annually, or oftener, volumes of the greatest value to our community.

The following programme is suggested as one that might afford work for a re-organized Board of Agriculture, which, however, would need to be composed of men especially qualified to investigate and to report upon the various topics named. But, have we not already in Ohio just such men, whose services could be secured for the noble work? Yes, we certainly have, and the demand would soon create or discover others.

PROGRAMME.

PRACTICAL AGRICULTURE.—To embrace Earth Working; Soils—their qualities and peculiarities; Melioration of the soil; Manures, Drainage, etc.

CROPS.—Grains and Grasses; Forage and Food Crops—their culture and treatment.

CATTLE-BREEDING AND HANDLING.—(Requiring specialties in each class); also, Veterinary, Training, Feeding, Driving, and Dairy Products; Sheep, and Wool-growing.

PESTS OF THE FARM.—Insects—injurious and beneficial; Bees; Vermin of various kinds; Birds—predacious and protective; Poultry—management and profits.

BOTANY AND HORTICULTURE.—The esculent vegetables; The Flower-garden; Fruits and their management and uses; Landscape-gardening and Home Ornamentation; Weeds—introduction and eradication; Invasions of Fungi; Rusts, and various Blights.

FORESTRY.—The Nursery, or Forest School, not School of Forestry; The Arboretum; Plantations and their treatment—thinning, trimming, cutting, or filling, and utilizing. Secondary products; The climatic influences and sanitary effects of trees.

FISH FARMING.—Breeding; Feeding and treatment; Capture and utilizing.

MECHANICS.—Farm Machinery.

Surely, with such a group of topics before them, a reorganized Board of Agriculture, with suitable aids, could find an abundance of material at hand for their investigations at the *Experimental Stations*, whence their combined results would be gathered into a series of reports that would be of incomparable value to the Agricultural community of our State.

The day of the necessity for State Fairs is passing by—the people of Ohio need something more and better, and will soon demand it of the men who are raised to those high positions.

The Fairs have undoubtedly been of great service in their day—they may still do much good, but let them be passed over to the district and county organizations. Diffuse their influence as widely as possible. Bring them into direct contact with the mass of the people, rather than continue the system of concentration at and about the great centers of population, at great expense and labor of the choice spirits constituting the Boards of Agriculture, who should be men of such a grade of intellect and knowledge as to qualify them for a higher order of mental work than holding shows to amuse, and, to a certain extent, to educate the people, when they could and should do so much better work for their enlightenment.

But, you say, this will cost money, and we look to the replenishment of our treasury from the vast crowds that flock to our Fairs. It *will cost money*, nor need you be reminded of the disastrous failures that have sometimes attended our State Fairs, after making large outlays in their preparation, nor need you be told of your dependance upon the fickle clouds for your success or failure. A rainy day has lost us thousands of dollars, and may do so again.

The expense need not be so great. The State should provide the means necessary for the experimental stations, and the salaries of a limited number of agents. The work should be progressive and continuous, not necessarily exhaustive of the topics in one year, nor even in one decade; but it should be *at once begun*, and steadily carried forward, and a series of reports should be issued, at least annually, at the expense of the State. How could a modicum of our taxes be bestowed to so great advantage to the tax-payers? The greatest difficulty will ever lie in finding experts willing to devote themselves to the work. Such men should be paid—but as in every other such enterprise, a beginning must be made—some sections of the programme can be taken up, and others will follow in succeeding years. If but a single department can be suitably reported upon, let us have that much, as in the State of Illinois, where the Botanist of the State Board, Prof. T. J. Burrell, has just made a report which has attracted, and most deservedly, the attention of both practical and scientific readers throughout the land. When shall we do as much in Ohio?

The *Indiana Farmer*, of recent date, has some excellent suggestions as to reorganization of our State Boards. And also, offers a substitute for the call from State Granges, to have the Bureau of Agriculture raised to the dignity of a Cabinet office, that, with your permission, will now be read:

"THE DEPARTMENT OF AGRICULTURE.—The Indiana State Grange, representing the Patrons of Husbandry in this State, passed a resolution respectfully, yet earnestly, requesting Congress to make the Commissioner of Agriculture a Cabinet officer, with the title, pay, and rank of a secretary. This is a move looking in the right direction, but its demands do not cover sufficient ground. We have three great material industries in this country, mutually dependent on each other, and yet practically distinct and independent. These are *Farming*, *Mining*, and *Manufacturing*. Of these, we should organize three departments, and place them under a Secretary of *Material Industries*. This may be done without any increase of the Cabinet; for the Secretaries of War and of the Navy should be merged into one, with the title of Secretay of Public Defenses. The Department at Washington, as at present constituted, is entirely too narrow to be erected into a secretaryship. We grant all that is said about the breadth of agricultural interests, and the burdens which these bear in the support of the government, but these interests are not organized, and the department, as now constituted, has no legally authorized channel of communication through which it can learn the wants of the farm interests or apply a remedy for the wrongs they suffer.

Let the State Boards of Agriculture be made departments of the State governments, and the Presidents of each, a Commissioner of Agriculture with one or more secretaries, with a Board of Directors of about one from each Congressional district. Let these each organize the counties in the districts which he represents, and supervise their action. Place the Agricultural College of the State under the control of this State department, for the purpose of conducting experiments and reporting results. The State Commissioners should constitute a National Board to consult and advise with the Department at Washington, arrange for experiments, and determine the action to be had in each State for the benefit of all. In this manner the National Department can be placed in legal communication with every county in the United States, and the experiments made by our Agricultural College will be known at once in every State, as we will know the result of every authorized experiment made elsewhere. At present the Agricultural Colleges of Maine and Massachusetts are making interesting experiments to settle the beet-sugar question, and Illinois and Minnesota are laboring to bring the Amber cane into profitable service as a sugar plant. What authentic information have we of the progress of these experiments? Newspaper reports reach us from time to time, but are these reliable, or are they the advertising machinery of interested parties? What farmer knows, or has the means of knowing? Would the act of elevating Commissioner Le Duc to a Cabinet position, with corresponding pay, remedy this defect? We trow not. It is not money, so much, that the department needs, as the machinery to work with and the legal power to use it. Give the department this machinery to operate, and the funds to operate with, and it cannot only do all that we have indicated, but it can, through the same machinery, collect and distribute authentic crop reports in advance of the grain gamblers, and thus save millions to the farmer."

I do not myself agree, however, with the proposition that the making a *Commissioner* into a *Secretary*, would, in the history of that unfortunate department, have had the desired effect upon the incumbents of the office, who have been unhappily incompetent.

All which, Mr. President, and gentlemen, is respectfully submitted by your earnest friend and long time associate.

The following paper, by Prof. M. C. Reed, of Hudson, Ohio, was then read:

THE ORIGIN AND PECULIARITIES OF OHIO SOILS.

If we seek to compile a history of Ohio, we shall find written records carrying us back only a few years, to a time when an unbroken forest was inhabited by various hunting tribes, who had no reliable traditions of their origin or history. But the first explorer found some evidence of the existence of a pre-Indian race; and, as the forests were removed, these evidences became more and more conspicuous, and now reveal to us a comparatively dense population, engaged in agricultural occupations, dwelling in fixed communities, and with no meagre knowledge of civil and domestic arts.

These men, lacking the art of writing, have left us somewhat of their history inscribed upon the surface of the valleys which they cultivated, and the headlands and terraces which they fortified.

In many places if we strip the rocks of their covering of soil and gravel, we find parts of the record of a history of times still more remote. The polished and striated rock surface, to the eye of the practiced geologist, reveals a part of the chain of the past history of the State as plainly as if written in good, plain English by the hand of an eye-witness.

By the painstaking study of these and similar records, the history of our State is carried back to a period too remote to be measured by centuries, and to a time when the rocks now constituting the basis of our soils were beginning to be deposited in the bed of a Silurian sea. To the north of us were towering mountains of rugged, barren, primitive rocks, from which much material was to be carved for the formation of our State, the sea also yielding up the minerals held in solution as contributions for the same end.

Long was the time during which the rocks now forming the surface of the State were slowly deposited and slowly raised from their ocean beds, and too long would be the task to even briefly outline the well-defined facts of this history. This work, however enchanting it might be, would be foreign from the objects of this paper, which is to commence with the rock surface of the State as it is, and to learn something of the varied processes by which a beneficient nature has changed that rock surface to a rich soil bed so well fitted for the varied wants of the agriculturist.

The surface of the State, after its final upheaval, was a high table-land, several hundred feet more elevated above drainage than now, and the process of soil-making commenced by the sub-aereal disintegration of the local rocks and the establishment of lines of drainage, which ultimately formed a net-work of deep canyons covering the whole State. This disintegration of the local rocks where their debris was retained, left, in the northwest corner of the State, a broad expanse of argillaceous or clay soil, bordered in the east with a broad belt composed mainly of calcareous soil with narrow bands, in which clay predominated, and terminating on the east with a clay belt, and this bordered by one wholly siliceous, in which the debris was almost entirely an unproductive sand, and from thence over the whole of the remaining eastern part of the State were alternate bands of sandy and clay debris, modified in the coal measures by narrow bands of limestone and the debris of the coal beds.

If the soils thus formed could be retained in place, a flora suited to each would ultimately take possession, and, as successive generations of plants lived and died, the remains of these would be added to these native soils. But the surface drainage was so complete, that over large parts of this area the disintegrated rock material would, by every rainfall, be swept into these foaming canyons, and much of the surface be retained in the form of barren unproductive rock. Some slight commingling of the debris not carried away would be effected by the rains, but most of the soil beds formed would be composed entirely of the debris of the local rocks, and while these exhibited great variety in their composition, all lacked some elements of the best soil. This slow proce s of soil-making continued until canyons 800 to 1,000 feet were cut through the solid rocks; forests first of coniferous, and as the soil became more ameliorated, then of deciduous trees, obtained a foothold here and there; the areas of vegetation became more and more extended, until, probably, the depth and numbers of the canyons afforded so thorough drainage as to seriously interfere with healthful forest growth

It is manifest that these causes, however long continued, would never result in such a soil as now covers the State. Were there broad expanses of low level land which would receive and retain the mingled debris of the mountain rocks, these would obtain that variety of mineral ingredients, finely commingled, which would invite a mixed and varied vegetation, and would culminate in such a soil as borders the banks of many tropical streams. But such conditions did not prevail, and the debris which reached the canyons were carried far away. A productive soil could only accumulate in small patches here and there, and under such conditions that there would be a constant liability by the destruction of retaining barriers for these patches to be swept away into the eddying canyons, leaving bare rock in their place.

If, in these days, a trained agriculturist had contemplated the scene, he would regard it as most unpromising, and doubtless be unable to imagine any agencies which could fit the land for the teeming products which now cover it. But nature is prolific in her resources, and often employs agencies which no human sagacity could foresee or predict. To fit this land for its future harvests, all these struggling patches of vegetation must be destroyed utterly. The beautiful scenery which had been carved out in these mountains, hills, and valleys, must give place to scenes of desolation which no pen can adequately describe.

In the frozen laboratories of the North was formed the instrument which should plow these lands for a future harvest. Ages were consumed in the fabrication of the instrument, and ages passed while it was doing its work, but this work was most thoroughly done. This instrument was formed of water, cold, unmelted water, which men call snow or ice. It came from its exhaustless store-house in the North, its flakes falling so gently that their delicate crystal forms were not broken, but accumulating till by its own weight it was compacted into ice of such thickness that as it was pushed southward, no rock-ribbed mountain could resist its crushing power. It plowed up the solid rock almost as readily as the laden ship cuts its passage through the water. The basin of Lake Erie is one of the furrows which it plowed. As it struck these Ohio fields, it came laden with the spoils of all the rocks of the North. The time-eroded peaks of the Ohio hills were ground to an impalpable powder, all surface rocks were torn from their beds, crushed and pulverzied. The deep canyons were filled with rock debris, and when the ice reached its southern limit, it carried to that point the debris of all northern rocks. As the farmer is not content with a single plowing of his fallow ground, so this ponderous machine was moved backwards and forwards over the table-lands of Ohio, now advancing for a series of years, now retreating, and then again advancing, the finely comminuted products of its work being carried by the escaping water far southward of its extreme southern margin. In its final retreat it left the records of scattered fragments of grounded ice in the numberless swamps, lakes and lakelets that are scattered along the divide between the Ohio river and the lake,

The final withdrawl of this ice sheet, occupied a long time, and before its commencement, the land denuded of many of its highest portions, had also subsided bodily, and although much of the thick moraine at the southern border of the ice influence was torn away, its debris was spread out in impalpable powder over the broad plains of the South, the old river channels being already filled with the coarser materials from the drift.

The final withdrawal left the whole surface of the State profoundly changed. The old canyons were filled with the debris to the depth of 200 feet or more. At the top they were much widened out, the rock bluffs removed and covered with debris, and over all the highlands of the divide was spread out a billowy undulating mass of drift, which also covered the northern slope to the margin, and far beyond the margin of the old lake which stood at a much higher level than that of the present lake.

In many places this original deposit was modified by the triturating and assorting power of water, especially on its southern border along the old lines of preglacial drainage, and on the margin of the slowly receding lake shore. The harder materials were worn into rounded pebbles, the siliceous matter reduced to sand, the clay washed out and carried southward, or left to eddy backward and be re-deposited in comparatively quiet water.

The general result was a soil composed in part of the debris of the local rocks, in part of material from other sources, and some of it brought from long distances.

Surface erosion carved out new channels of drainage, which have naturally largely followed the old canyon lines, giving us streams with clay or gravel beds, but flowing far above the beds of the old canyons. In places, streams wholly post-glacial have been formed, and these have laid bare the bed-rock, and in places have commenced carving miniature canyons through it.

The natural wash from the hills, combined with the growth of a restored vegetation, has gradually filled up many of the shallow lakes, has converted them into swamps, and many of them into broad plains of arable land. This process is still continued, and the remaining lakes are year by year growing shallower and becoming smaller. Left to the influence of natural agencies, they will in time all disappear. These agencies so briefly described have spread over nearly all the rocks of the State a thick mass of material, rich in all the mineral elements required for the production of a fertile soil. The restored vegetation became at once more luxuriant than that which preceded it, and has for ages been continuously enriching the soil by annual increments of humus and vegetable mold which, except in very few places, has not been carried away by surface wash.

No part of the State has escaped the influence of these beneficient agencies. True, in the south-eastern part of the State is a large area where the hills now show no results of these agencies, either because never covered with drift, or because it has been carried away by surface erosion. But the fertile valleys have a soil composed largely of this drift material, and whoever in all this region will gather a handful of rounded prebbles from the beds of the streams, will find an important percentage of them testifying that their native home was in the highlands of Canada. The hills in this part of the State are composed of comparatively thin strata, in the aggregate containing all the mineral elements needed, which by decomposition often furnish an exceedingly fertile soil. Hills containing only one or two varieties of rock are often nearly barren.

Over all the rest of the State, the typical characteristic is the mingling, in each cubic yard of rock-covering, the debris of an almost endless variety of rock. In sinking a single well through this material, an extensive cabinet could be stocked with minerals, and with minerals which have furnished alumina, silex, potash, lime, and every mineral element needed.

In each locality the underlying rock affects the soil in three ways:

First. It influences the topography of the surface. A soft, homogenous rock easily eroded, leaves broad, level plains, cut away to a lower level than that underlaid by the harder rocks, the latter often leaving abrupt headlands and high plateaus. Where the rocks are homogeneous, and erosion has left hills, these have rounded regular outlines, giving a marked contrast to the benches of the hills containing alternate strata of harder and softer rock.

Second. It affects in a marked degree the sub-soil drainage. The lime and sand rocks left in their beds were very generally broken, shattered and fissured by the agencies above described, while the soluble character of the limestone has resulted in subterranean streams, so that these rocks over large areas secure the purpose of under drainage, readily carrying off the surplus water which penetrates the soil. Underlying argillaceous rocks from their evenly denuded surface, and from the want of all fissures and openings tend to the production of a moist or wet soil.

Third. The underlying rock affects the soil by the large amount of material it has locally furnished it, and by the amount which each variety of rock furnishes to the territory immediately south of its outcrop, the southward tendency of the drift carrying its debris in that direction.

With this general outline of the conditions which have determined the character of the Ohio soils, it would be well if we could furnish an accurate map, designating all local peculiarities of the soils of the State. It was intended that this should be accomplished by the late geological survey, and the work was commenced by a member of the corps, who was also the Secretary of the State Board of Agriculture. Unwisely, I think, this work was not continued, but considerable was done in this direction and many valuable facts collected by all the field geologists employed in the work. But the facts collected were fragmentary and imperfect, and the record of them is necessarily scattered through all the reports on the local geology. These facts need to be collected and digested and supplemented by a general and minute study of the soils of the State, the whole to be given to the public in a supplemental volume. This is the agricultural part of the report which was a part of the original plan and which remains to be completed. But an approximately accurate account can now be given of these local peculiarities of the soil.

On the margin of the lake are three distinct varieties of soil, no one of which is continuous over very large areas. Where this drift deposit is now beaten by the shore waves, it is ground by their action to fine sand and clay, the latter eddying backward and finally deposited at the bottom of the water, the sand thrown up into a shore ridge and driven backward over the land by the wind in sandy billows and dunes. For long distances in Ashtabula and Lake counties, this work has been continued since the lake stood at a much higher elevation and broad bands of poor, sandy soil, constantly drifting under the influence of the wind, is the result—a soil comparatively barren, and which can be rendered fertile and stable only by restoring the materials of which the waves have robbed it.

At a few points here, mainly on the margin of modern or ancient streams, there were expanses of shallow water where the waves had too little erosive power to interfere with the growth of marsh vegetation, and the result has been the formation of a soil of finely communited materials with a large amount of vegetable debris. Areas of this kind of soil are very extensive along the western part of the Ohio margin of the lake, in places extending back many miles from the lake where this drift material has supported a dense swamp vegetation, and the surface slowly redeemed from the lake is now covered with a deep, black loam, and constitutes some of the best corn land in the world. The proximity to the out-crops of the lime rocks has caused a large amount of calcareous material in the drift. Granite and other rocks have supplied abundance of potash. All this material has been finely comminuted by the successive shore waves, and the large amount of vegetable debris added has resulted in a soil unsurpassed in permanent fertility.

In a few places upon the lake shore where precipitous bluffs of drift or rock are margined by deep water in the lake, all the material eroded is swallowed up by the water, and the adjacent soil is.not modified by lake influences.

At irregular distances southward, two or more sand ridges in places of considerable width are reached. These are simply the debris of the drift after the argillaceous matter has been washed out of it by the old lake waves. As left by the receding lake, they were, doubtless, comparatively barren, but vegetation which found a rich soil upon each side of them, gradually encroached upon them, so that they steadily became less and less barren, and long before the settlement of the State attained sufficient fertility to support a dense forest of deciduous trees. Resting upon a bed of the unmodified drift, and in places upon the debris of an old shore swamp, the roots of the trees by penetrating these sub-soils, found abundant mineral food, and maintained a vigorous and healthy growth. These sand ridges now comprise some of the highest-priced farming lands in the State.

Beyond these ridges the soil is modified, in a marked degree, by the character of the underlying rock. In places in the eastern parts, extensive ridges with a preponderance of sand, mark the out-crops of the Berea sandstone, while above is a broad stretch of wet and clayey land, rich in potash as is evidenced by the gigantic elms which are characteristic of it. Much of this land was very uninviting to the pioneers, and long remained unredeemed. It is admirably adapted to grazing, and when under-drained becomes excellent arable land. It is often bounded by abrupt bluffs of conglomerate, fissured at the margin, rounded and striated at top by the ice action, and lined with chestnut timber, which favors a soil containing coarse fragments of sand rock.

The broad table-lands underlaid by this conglomerate are almost everywhere deeply covered with typical, unmodified clay drift, producing a soil so well adapted to the grasses that they have been almost wholly devoted to their growth. But the largest crops of wheat and of corn raised in the State, have been grown on these lands, and the soil is most admirably adapted to a mixed and varied husbandry.

The western part of the divide is underlaid by rocks which were pretty evenly eroded by the ice, and furnish us with broad plains of drift soil, generally more finely communited than at the east, and more disturbed and assorted by the action of water, the limestone underlying a part and in close proximity to the rest, and thus furnishing a still larger percentage of lime.

The old channels cut through the divide throughout its whole extent, widened out by the action of the ice and filled with drift, left broad plains dotted with marshes and lakes, and bordered by modified drift; these gradually filling up by vegetable growth, and the wash from the hills, have given us a soil much like that deposited in the old marshes along the margin of the lake.

In the central and western part of the State the typical drift soil extended far southward toward the river, but exhibiting more assorting of material by the action of the water than farther north, while the broad plains that border nearly all the rivers have a peculiar composition and a peculiar history. The valleys are filled to a great depth with drift material, much of it in the form of water-worn, rounded pebbles,—timber having been found in it 100 feet from the surface, and testifying to the existence of those pre-glacial forests already mentioned. Over this formation has been spread out the finer debris of the drift, mingled with wash from the hills and the decomposed vegetation of the valleys, until this mixed material has accumulated to the depth of many feet. The fineness of this material testifies to the quietness of the water when it was deposited, as the coarse, rounded pebbles below testify to the turbulent, foaming torrents which preceded. The result is a soil of unsurpassed fertility, the underlying gravel affording such perfect drainage that crops suffer little from excessive rain-fall, until the rivers are filled to the brim, the gravel below being a store-house of water against the exigencies of a drouth which can not be exhausted until the river runs dry. As far from the river as this deposit of pebbles extends, so far will the water of the river extend and be carried upward to the roots of the plants by capillary attraction. These varieties of soil shade imperceptibly into each other, and are diversified by very few spots of limited extent which should be called barren or unproductive. So that it becomes a matter of doubt whether we are not likely to suffer for the want of more land which can not profitably be put under cultivation, and so compelling larger forest reserves.

If time and sufficiently minute and accurate information permitted, I should be glad to define by definite boundaries these different varieties of Ohio soils. But facts have been noted sufficient to show that there is not in this country, or elsewhere, another area of the size of Ohio, blessed with a soil better fitted for all the wants of the agriculturists, and where its permanent fertility can be more easily maintained. The State, as has been said, stands in the great highway of the nation, is the gateway between the East and the West. The Western tide of emigration and of business from all New England and all of the old Middle States, is of necessity tributary to it, and the great returning wave from Denver to the Red river of the North surges over it. So, in untold ages before the dawn of history the whole boundless North was made tributary to it, and has helped to cover its surface with a soil which, under proper tillage, shall forever bud and blossom like the Garden of the Gods.

The thick mass of original, or modified drift, which underlies so large a part of the Ohio soils, affords an exhaustless supply of mineral elements to be added to the soil, as they are gradually removed by the cultivation of the crops. These may, in many cases, be rendered available by deeper plowing, gradually and cautiously practiced, bringing to the surface a moderate amount of this subsoil.

But there is a natural process which accomplishes this, which illustrates the fact so common in nature, that seeming evils are often blessings in disguise.

Rarely in this State do our agricultural interests suffer from long and severe drouths. When they occur it has often been remarked that the crops of the immediately succeeding years are unusually large. When evaporation from the surface for a considerable period exceeds the rain-fall, the surplus moisture which is taken up by the air is brought to the surface by capillary attraction from the subsoil below. It comes up loaded with all the soluble minerals contained in this subsoil, fertilizing it and augmenting its future harvests.

This process is shown in a special manner in the arid plains of the West, where continuously year after year the evaporation is largely in excess of the rain-fall, the surplus moisture being supplied by subterranean streams having their source of supply in the Western mountains. These waters dissolving the minerals through which they percolate, bring them to the surface, and upon evaporation leave them there. And this process has been continued until the alkali plains and basins of the West are the result. Everywhere there is such an amount of these minerals in the soil, that when ordinarily an effort is made to render any of the land in this arid region productive by irrigation, it is necessary to commence by a long continued flooding of it with water which will dissolve out and carry away the surplus minerals. Fortunately for us the times during which evaporation exceeds the rain-fall are not long continued. But there are short periods during every season when the moisture escaping into the air comes from the subsoil below; and often when the vegetation seems parched and shriveled, and we begin to long for the refreshing showers, the injury which is so apparent to us is more than compensated by the unseen and unnoticed beneficent action. And here allow me to suggest that one of the most marked benefits of underdrainage on drift clay soils consists in the influence it has in bringing these deeply buried minerals to the surface. It opens up and prepares this subsoil to absorb and retain a much larger amount of this surplus rain-fall, to be again brought to the surface during drouth, furnishing not only moisture to the parched vegetation, but spreading out over the entire surface precisely the mineral fertilizers needed.

In a few places changes occur in the sub-soil which are not beneficial, but these changes are local and the result of unusual conditions. On the farm upon which much of my boyhood was spent, was a large pasture which originally contained a number of little cat swamps, and which received the wash of the more elevated land around. It had been cleared by cutting down the timber and allowing the most of it to rot upon the surface. When I first knew it, it was a very productive pasture, but disfigured by many partially decayed logs and by the "sinks" left by the old cat swamps. It was gradually cleared of the old logs and stumps, and after some years was put under the plow, mainly for the purpose of reforming the surface.

The soil was a black, fine, silicious mold, and found to be exceedingly productive. But the plow pierced in many places deposits of bog iron ore, and black oxide of manganese, which where broken up and mingled with the soil.

After I left the farm an effort was made to restock this field with pasture grasses. Repeated attempts were entirely unsuccessful; the grass would not grow; the only crop was field sorrel. The suggestion to experiment with lime and ashes was followed, and a top dressing of lime was made on one belt through the field, and of wood ashes on another, and the whole re-seeded. A heavy crop of grass on these two belts was the result, and a crop of sorrel on all the rest of the field. This was afterwards covered with lime when the sorrel disappeared and grass took its place. This was over twenty years ago, and the field has remained very productive.

On a line between Erie and Huron counties is a more conspicuous example. There is a large area of what was once an old shore marsh, now surrounded with land of great fertility, which has nothing in the appearance of the soil to distinguish it from the body of land which is entirely worthless. The large amount of vegetable debris shows that when covered with water it was capable of supporting a dense swamp vegetation. When first subjected to the plow it was thought to be as valuable as the adjacent lands, but was found to be quite unproductive. It was sought to reclaim it by more perfect drainage, and a part of it was covered with a network of open ditches. It was nothing better, but rather grew worse. No grain or grass crop would grow upon it, although the apple trees, as evinced by accidental seedings, seemed capable of maintaining a healthy growth upon it. In some places the underlying rock came so near the surface as to detract from the value of the land if there was no other trouble about it. But this is not the cause of its general unproductiveness. The abundant growth of sorrel suggests an acid in the soil, selected lumps of the earth when touched by the tongue give a decided acid taste, while water in which a lump of the soil was placed gave a distinct acid reaction with litmus paper. Further examinations showed that this subsoil of drift which covers so much of the Ohio rocks is here wanting, and that the soil rested directly upon the underlying rock, which is here the Huron or black shale. This, along the whole line of its out-crop, from the northern part of the lower peninsula of Michigan to the Ohio river, is filled with a multitude of nodules of iron pyrites, a compound of sulphur and iron. Exposed to the joint action of air and water, these nodules are decomposed, the sulphur is set free, and by oxidization becomes sulphuric acid. The drainage of the land exposed the nodules more completely to atmospheric agencies, and their decomposition became more rapid, and the land more acid. A thorough dressing of lime intimately mixed with the soil, will correct this acidity, and will render the most and perhaps all of these "bad lands" productive.

This paper is by no means intended to be exhaustive, but should not be closed without a brief reference to the utilization of the deposits which now fill the basins formerly occupied by so many of the ponds and lakelets, which characterize the table-lands of Ohio. The waters of these ponds supported a multitude of molluscous animals, whose remains constantly accumulating at the bottom, have left thick beds of pure shell marl, which, as vegetation encroached upon the ponds and in the end converted them into marshes, was ultimately covered by a bed of peat or black muck. This peat covering is in some instances thin, and in others of great thickness. In the immediate neighborhood of Hudson, I have made explorations where this peat covering was over 15 feet in thickness, and again where it was quite thin and the pure marl below was over 15 feet thick—the auger which I had prepared for such explorations being only 15 feet long, so that this became the limit of my tests. In places in the county it is claimed the peat beds reach a thickness of 100 feet.

Of the value of this marl there can be no question, wherever a larger percentage of lime is needed in the soil.

The peat or black muck when dried is the best possible absorbent for all household and stable offal and excrements. It is, in many cases, if properly applied, an excellent fertilizer for up-lands. We know that plants obtain their supply of carbon from the air. We also know the great benefit to vegetation of a proper amount of decomposing carbonaceous matter in the soil. And, although some agricultural chemists dispute it, I believe a large amount of the ammonia taken up by plants is obtained through this agency. We know how abundantly it is developed in the compost prepared for our hot beds, and that in a less degree it is developed in a mass of forest leaves kept constantly wet. If the slow oxidization or combustion of carbonaceous matter in the soil is at the exposure both of the air and water, it is evident that both elements of ammonia will be liberated at the same time, and in that nascent condition which favors combination. The advantage of surface application of stable manure, and the advantage of all vegetable materials in the soil over what would be derived from the ash of the same matter, may be explained in this way. Placed where they will be kept constantly moist, and at the same time exposed to the air, they withdraw from these exhaustless store-houses the indispensable ammonia which is developed at the precise place and time when it is most needed. Even iron turnings thus placed become by their oxidization true fertilizers, and it is doubtless in this way that the carbonaceous matter of this peat which can not be absorbed by the plants becomes a real fertilizer when added to the soil.

The Convention then took a recess until 7 P.M.

EVENING SESSION—7 P.M.

The Convention met pursuant to adjournment. Before the election of members of the State Board was entered into, Judge Jones stated that there had been some controversy among members as to the right of proxies voting at the election. The President requested Judge Jones to give his understanding in regard to this matter.

JUDGE T. C. JONES. It has always been the usage and understanding that there should not be voting here by proxy. There is no such thing in an honest election as any proxy, unless it is where money is represented, as with railroads or with bank stock, and the stock is voted, and not the man. But this is a legal body, constituted of the Presidents of the local county societies and other authorized delegates from the county societies, and a delegate can no more delegate his authority by giving a proxy to anybody else, than a member of the Legislature can, or any other legal officer.

THE PRESIDENT. That, I understand, to be the law, and, as far as I know, for six years that has been the practice.

C. C. Walcutt, of Franklin, and James Buckingham, of Muskingum county, were appointed by the Chair as tellers.

During the first ballot, the President stated that he had been handed a note from the President of the Wyandot county society, authorizing Chas. H. Moore to cast the vote for that county to-day at Columbus, Ohio, but with his understanding of the rule, he had declined to admit the vote.

First Ballot.—The result of the first ballot was as follows: Total number of votes cast, 64. Necessary to a choice, 33. Of this number, Chas. Smith, of Marion county, received 30 votes; R. Baker, of Lorain county, 42 votes; Arvine C. Wales, Stark county, 30 votes; Chas. G. Bailey, Gallia county, 31 votes; Col. Wm. H. Hill, Hamilton county, 28 votes; W. S. Foster, Champaign county, 32 votes; George W. Gregg, Pickaway county, 18; J. C. Levering, Knox county, 40; G. F. Newton, Holmes county, 22; S. B. Hoffman, Hancock county, 22; John Townshend, Darke county, 23. R. Baker and J. C. Levering having received a majority of all the votes cast, were declared duly elected.

Second Ballot.—The second ballot resulted as follows: Whole number of votes cast, 68. Necessary to a choice, 35. On this ballot, Chas. Smith received 27 votes; A. C. Wales, 26; C. D. Bailey, 31; Wm. H. Hill, 24; W. S. Foster, 36; George W. Gregg, 10; G. F. Newton, 17; S. B. Hoffman, 13; John Townshend, 12. W. S. Foster having received the requisite number of votes was, declared duly elected.

Before proceeding with the third ballot, the names of G. F. Newton and John Townshend were withdrawn.

Third Ballot.—The result of the third ballot was as follows: Whole number of votes cast, 67, Necessary to a choice, 34. On this ballot, Chas. Smith received 28 votes; A. C. Wales, 25; C. D. Bailey, 38; Wm. H. Hill, 24; G. W. Gregg, 10; S. B. Hoffman, 6, and John Townshend 1. C. D. Bailey having received a majority of all the votes cast, was declared duly elected.

Fourth Ballot.—On the fourth ballot, 68 votes were cast. Necessary to a choice, 35. On this ballot, Chas. Smith received 22 votes; A. C. Wales, 23; Wm. H. Hill, 17; G. W. Gregg, 2; S. B. Hoffman, 3. No candidate having received the requisite number of votes, there was no election.

Fifth Ballot.—On the fifth ballot, 67 votes were cast, Charles Smith receiving 20; A. C. Wales, 30; Wm. H. Hill, 16; S B. Hoffman, 1. No member having received the number of votes requisite to elect, another ballot was ordered. Before this ballot Wm. H. Hill withdrew his name.

Sixth Ballot.—The result of the sixth ballot was as follows: Number of votes cast, 65. Necessary to a choice, 33. On this ballot, Chas. Smith received 21 votes; A. C. Wales, 43; S. B. Hoffman, 1. A. C. Wales was declared duly elected.

W. B. McClung moved that when the Convention adjourned, it should adjourn to meet in the Board of Trade Room in the City Hall, on the following morning at ten o'clock. In support of his motion, Mr. McClung said: The reason, Mr. President, I have for making this motion is, that there are quite a number of questions that gentlemen have wanted to bring before the Board, and I desire to do this in order that we may have an expression from the Convention in regard to the matter.

The motion was amended by substituting nine o'clock for ten o'clock, and was then agreed to.

Col. W. B. McClung offered the following resolution, to come before the Convention on to-morrow:

WHEREAS, The Ohio State Board of Agriculture is without a permanent home; and whereas, it is desirable that the State Fair of Ohio should be located upon grounds belonging to the State; therefore,

Resolved, That the General Assembly are hereby requested to create such legislation as will enable the county of Franklin to donate the Franklin County Fair Grounds to the State of Ohio for such purposes, or grant to the State Board of Agriculture for the same purpose, fifty acres of the grounds now used by Ohio State University.

The Chair suggested, that as there was considerable work to do, if there were other resolutions prepared, it might be well to offer them before the adjournment of the evening session, that they might appear in the morning papers.

R. Baker, of Lorain county, offered the following:

WHEREAS, The cattle disease, prevailing in some localities of our country, known as pleuro-pneumonia, results in such restrictive action by foreign governments as seriously to interfere with the profitable exportation of cattle; and whereas, this subject is now attracting the attention of Congress; therefore,

Resolved, That the great importance of legislation to correct the evil is hereby urged upon Congress, and we respectfully ask of that body the early enactment of such law as will adequately protect the great stock-growing and meat-producing interests of our country, and providing for the appointment of a competent commission to have charge of the whole subject, with authority adequately to deal with the same.

The Chair announced to the Convention that Franklin B. Huff, connected with the United States Department of Agriculture, who was to have read a paper before the Convention during the day, had not done so because of some misunderstanding with regard to the time, and that another paper had taken its place. He stated that Mr. Huff was present, and would probably read his paper before the Convention the first thing in the morning.

C. Caswell, of Erie county, offered for consideration on the succeeding day, the following resolution:

WHEREAS, The present organization of the Ohio State Board of Agriculture fails to interest the farmers of Ohio so fully as to insure such a success for the society as its most ardent friends could desire, because of its small membership; and whereas, the location of the Fair Grounds is not permanently fixed; therefore,

Resolved, First—That it is the sense of the Ohio State Board of Agriculture, in annual session now assembled, that the laws providing for the organization of the State Board should be so amended as to provide for the permanent membership to consist of one member from each County Agricultural Society in the State; which, it is believed, would be the means of creating a more general interest in our State Fair throughout the State.

Second—That the location of the State Fair should be permanently fixed at the Capital City.

On motion of Judge Jones, the Convention adjourned to meet at nine A.M. at the City Hall.

MORNING SESSION.

THURSDAY, *January* 6, 1881—9 A.M.

The Convention convened pursuant to adjournment. The President introduced Franklin B. Huff, of the United States Agricultural Department, Washington City, who read the following paper:

AMERICAN FORESTRY.—HOW TO PRESERVE OUR FORESTS.

In considering the subject of Forestry we find it more or less connected with many branches of science. The Geologist finds a relation existing between the surface rock formation, and the trees that grow upon the soil formed from its decomposition. The physical geography of a country, its aspect and elevation, have a marked influence upon the woodland growth. The chemical constituents of the soil and subsoil, have their effects not less distinctly shown in their woodlands, and the meteorological and climatic influences of forests, their influence upon the water supply of a country, and their hygienic effect, all present subjects worthy of our study, and promise much as the reward for future research and observation. The subject presents inviting fields of labor in half a dozen or more of the natural sciences. In countries where forest administration exists, it implies an extensive acquaintance with the special jurisprudence of the forest code, and with matters relating to its application—and in all countries, but more especially in our own, it presents problems in political economy, in agriculture, and in the industrial arts, that deserve our careful attention.

Having learned since noon of yesterday that an opportunity might occur for presenting some thoughts before you, I have, for the sake of brevity, selected from the wide range of subjects above indicated, a few points of direct, practical interest from their economical bearings, and for the sake of brevity, have reduced what I have to say to writing, the better to define these points, and in the hope of leading to a fuller discussion of this highly important subject.

In recently looking through the long series of your annual reports, I found that, with the exception of some papers upon hedges and ornamental planting, the first article bearing directly on forestry that appears in the series, is that by Mr. John H. Klippart, who so long and so well discharged the duties of corresponding Secretary to your Board. It is entitled, "Forests—Their influence upon Soil and Climate," and is found in the report for 1860, fifteen years after the Board was organized. In this paper the climatic effects of the woodlands, their influence upon the water supply, their retention of winter snows, the shelter they afford against injurious winds and excessive solar heat, the prevention of torrents, and other beneficial effects are discussed at length, and in a manner fully justified by experience and observation, in all countries, and in every age. He presents an abstract of Mr. Marcus Bull's experiments, made some fifty years ago, upon the relative value of certain woods and coals for fuel, and gives a list of the native trees of Ohio, with some facts concerning their size and their distribution in the different States.

Since the paper of twenty-one years ago, your published records show, that this subject has received somewhat frequent notice, and through the efforts of your worthy associate, Dr. John A. Warder and others, it is gradually forcing itself upon the public attention, and, as I verily believe, will ere long hold a promient place, not only among agriculturists, but among those engaged in the many industries in which wood is used as a material—and to greater or less degree, among all classes of our people—for I can think of none but that are more or less interested in the question before us.

For the first few years after the New York canals were finished, fully ninety per cent. of the forest products that went to market by this route, were derived from that State. A few years later, and we find the percentage reduced to fifty, then to forty, thirty, twenty and ten. It is now but five, and must ere long cease altogether. This means that the Empire State has now scarcely any surplus forest products to spare, and it is well known that in many regions where extensive lumbering operations were carried on, the ample forests have given place to agriculture, or where burned over, have since lain an idle waste.

In conversing with a prominent mill owner at Clinton, Iowa, upon this subject, he said, "I have lived two business lives, and am now on my third, which I expect to see through in my day. I began lumbering on the Hudson, at Glens Falls, and stayed till all the pine was worked out. I then went to the pineries of the upper Allegheny waters, in southwestern New York, and when these were gone, I began operations upon the Wisconsin pineries, which are likewise fast disappearing, and in a few years will be gone altogether.

The Northern, Middle and Eastern States have been drawing heavily upon Canada and Michigan for their pines, through the last quarter of a century or more, besides the vast quantities that have gone to foreign countries. The native limits of the pine in the Lower Peninsula of Michigan are being rapidly narrowed down, and at the present increasing rates, must inevitably dwindle to a point, and disappear altogether, before many years are passed.

For several years past the Dominion Government in Canada has been seeking, through Parliamentary committees, to devise some measures for meeting the situation, with reference to their forests, and their supplies in many regions of former abundance are more nearly exhausted than our own.

The State of Maine is known, in common parlance, as "The Pine Tree State," and the figure of a stately pine is borne upon its great seal. Yet this name and device refer to a time already gone, for that State now exports little or none of that timber, and her ship yards, at Bath and elsewhere, draw their main supplies from our Southern States.

Her lumber ports, including as a part those of the St. John river, in New Brunswick, are now chiefly hemlock and spruce, and the latter is now suffering from a casualty that in a few years, at present rates of decay, would annihilate it altogether.

The first effect of this rapid and inconsiderate exhaustion must be the unavoidable advance of prices, as the supplies fall off, and the effect of this, it is to be hoped, must be to impress upon our people a realizing sense of the value in a growing tree.

Is there any rate of investment that grows so fast as this? Let us for a moment consider. If we count the rings of growth on the section of a tree, we find a series, approximately circles, and on the general average, about of equal width, from year to year. A season unusually favorable or otherwise, may make the growth greater or less in some years than in others, but for the present argument, we may call them true circles, of equally increasing breadth. These counted from the middle outward, form the series 1, 2, 3, 4, 5, etc., corresponding with the years in the tree's age. The areas of these circles, are as the squares of these numbers, or 1, 4, 9, 16, 25, etc., and the gain in growth from year to year is the difference of these squares, or 3, 5, 7, 9, 11, 13, etc.—an arithmetical series having a common difference of 2. I will again ask what other investment pays such rates as this? In this calculation, I have considered only the sectional areas without reference to increasing height and gain in relative values as a tree becomes older.

I need not remind you that the importance of this subject long ago engaged the notice of foreign governments, and that in every country on the Continent of Europe some system of forest management is in effect, in greater or less degree, from the elaborate systems of France and Germany, that have been perfected through centuries of experience, down to the simple regulation and protection of the public domain in some of the minor States. In countries where these Codes of Forestry have been most carefully matured, the wood-lands are under the care of agents who have been thoroughly trained to the profession in special schools of Forestry, maintained like our Military and Naval Academies at the expense of the State. There are regular grades of promotion open to the most deserving, and retiring pensions when life's working days are over. There are many journals devoted to the interests of the profession, and scientific talent of the highest order is devoted to special researches for the advancement of knowledge in the many lines of investigation to which the forests invite. But in all countries where systems of forest management are in force, there are extensive tracts of land belonging to the public domain, or to local municipalities or institutions under the protection of the Central Government —and the management extends to these and no further. In special and exceptional instances the Government may interfere with private owners, and dictate the management of their wood-lands. In some cases the law may require a declaration of intention to clear, to be filed some months beforehand, so as to allow the forest agent opportunity to inquire as to whether any public interest would suffer from the clearing, such as the exposure of light sands to drifting winds on the sea shore—or a danger of erosion from torrents—or of overflow from a river—or exposure to sudden invasion on a frontier, where the presence of wood-lands is a question of public interest and safety; but these are exceptional cases, the rule being, that an owner may plant or cut trees on his own land, as his interest or his inclination leads. We may, in passing, notice that the tendency in modern times has been to confirm this individual right. A time was, in France, when the government might take trees for its navy, even from avenues and homestead parks, upon payment of value by appraisal, and other restrictions were placed upon the timber of private owners, but these have now been mostly modified as above stated.

Now, turning to examine the tenure of lands in this country, we find that in all of the older States, and in considerable portions of the newer States and territories, the landed property is now vested in private owners. Their titles are allodial and absolute, and probably without exception, there is no stipulation whatever as to the kinds of cultivation that shall be followed, or the crops that shall be raised. We also know that the American citizen is of all men the most jealous of his rights, and the most impatient under dictation, in the management of what he knows is his own. On questions arising in regard to eminent domain he may submit to an appraisal and forced sale of the right of way across his farm, where he cannot prevent it, but he would never allow any man or set of men, to control his cultivation against his will.

What then can we do? In my opinion, the work must be one of education. We must lead the owners of the land—by precept and example—to learn the profits to be derived from the planting of trees. We must show them that there is money in it—not only from the material actually grown, but incidentally to our agricultural and horticultural interests, from the proper distribution, and due proportion of groves and belts of wood-land, among our grainfields, our meadows and pastures, and our gardens and orchards. We should be able to demonstrate these benefits by actually showing how much more can be realized from three-fourths of the surface —one-fourth being wood-lands—than from the whole with no trees growing.

In some regions, the remaining supplies of native timber are yet of considerable extent and value, and no time should be lost in seeking to reserve these for the greatest benefit, as well to the present, as to a future generation. We are annually wasting, and allowing to perish, forest products which if utilized would bring a rich return at a small cost. Perhaps this is nowhere more strongly illustrated than in wood-cutting machinery, where material is saved that would otherwise be lost. The old saw-mills of the country would tear out a quarter of an inch in width every time through, amounting to from 20 to 25 per cent. of all the lumber they sawed, and this often when the quality and price were of the highest grades, while with thin saws, and well adjusted machinery, the loss is not more than an eighth, or a twelfth of an inch at every cut.

There has been a great economy introduced in recent years, from using band, concave and cylindrical saws for special purposes, and by steaming and slicing thin stuff, whereby the waste is reduced to nothing, and further advances in this direction would richly repay the inventor. In boring pump logs, the core may be saved in one solid piece, and sometimes a tube within a tube, by using thin cutting borers. Shapes may now be secured by bending, where formerly they were got by cutting away, and uses are now found for small parts that formerly went to waste.

There is a saw-mill on the Grand Trunk Railway between Portland and Montreal, where the slabs and edgings are made into paper pulp. We know that the best of illuminating gas is now made from chips and sawdust, and a child can understand that a saw wastes less than an axe in felling trees and cutting cordwood.

Permit me to mention an economy in the manufacture of charcoal, which I have witnessed in an adjoining State, on my present journey. At an iron furnace where large quantities of charcoal are required for smelting ores, a chemical company has established works for saving the volatile products from burning of wood into charcoal, and turning them to commercial account. As I was informed by the Superintendent two months ago, that this company paid twenty cents for the smoke of every cord of hard wood used; but since then smoke seems to have risen, for the President of the iron works informed me two days ago, that they now got 31¼ cents per cord for the smoke, and a clear saving of from $5,000 to $6,000 a year from its sale. From this smoke they make two gallons of wood alcohol, used in the manufacture of paints and varnishes, and worth 85 cents per gallon in the Chicago market. The acid residue, after this distillation, is neutralized with freshly slacked lime and evaporated to dryness, yielding 200 pounds of the acetate of lime, used in the manufacture of white lead, and worth in the Philadelphia market two cents and a half a pound. From a cord of wood the yield of charcoal is 42 bushels, worth 7 cents per bushel, or $2.99 per cord. The chemical products above mentioned, amount to $6.70, besides the combustible gases not condensed, which supply three-fourths of the fuel used in evaporation, and the tar which is used only as fuel. The latter might be turned to much more profitable account, under a more refined chemical treatment than that in use, but it will be seen from the above statement, that the smoke yields more than twice as much profit as charcoal, and it is claimed that the latter is increased both in quantity and quality by the process employed.

Time will not permit me to notice the agency of forests in restoring fertility to worn-out lands, and other benefits that result from their products other than as wood. The methods employed in drawing turpentine from the pine forests of our Southern States, kills off the trees in a very few years, while by other and improved methods, the French make their pineries last fifty years and more without difficulty. In the province of New Brunswick, I learned, a few months ago, that not 1 per cent. of the hemlock trees cut for peeling bark, was saved for any other use, and the experience of many sections of our own States is but little better. In short, we have every thing to learn about the economies of forestry, and it would be a happy thing to the country if our people could begin early to learn these useful lessons, while considerable supplies still remain.

Recurring again to the question above asked, "What can we do?" I would reply further: That the General Government, which still owns large bodies of woodlands in the interior and on the Pacific coast, should delay no longer in putting them under an efficient management, with the view of supplying the timber now fully matured, and at its greatest value for the living age, regard being at the same time had for the preservation of the younger growth for the future. It can do a great deal towards extending our knowledge of the wants and requirements of the country, and the means by which these may be most effectually supplied. We hope to be able to submit, in detail, many facts before committees of Congress, at its present session, that may tend to meet some of these objects.

With reference to the question of State Legislation, I will conclude by submitting for your consideration, a memorial which was adopted by the American Association for the advancement of science at its last sesion in Boston, in August last, and a copy of which has been addressed to the Governor of every State and Territory in the Union. With reference to Ohio, it gives me great pleasure to learn that the House of Representatives at its last session, referred the general subject of Forestry to a special committee of its members, and from the intelligent appreciation of the subject which I have heard its members express, I feel confident that it will receive due attention; the memorial I refer to, will probably be transmitted by the Executive to the Legislature in due time, and should the Board of Agriculture approve, I would trust that it may receive the support of its influence.

Judge T. C. Jones. I am aware, Mr. President, of the limited time we have this morning to dispose of this subject in view of the other matters that are before us, yet I cannot help but think that a very few words would not be unacceptable or possibly uninstructive. One thing we have to encounter is the multiplicity of things that are suggested. Farmers are an exceedingly practical class of people, and stand, perhaps, more closely than others to the principal that it is best for people to do one thing at a time.

There is no country, I believe, in the world, so highly cultivated with so thick a population that has such a variety of trees growing in all parts of the country as Great Britain, and yet that has been accomplished without any special laws, as I understand it, to protect them. In looking over the country and traveling altogether almost in the rural districts with my wife, she said, in speaking of its beauty: "I believe that if we only had the hedges of England, and if we had the trees scattered about everywhere, as in England, that America would be as beautiful as it is here." But it is the observation of everybody in England, when leaving the city to go through the country, that the scenery has a charm about it that surpasses every thing that they every contemplated, or conceived of. Now, the lands in England are occupied almost exclusively, as is known, by tenants. They are not permitted to cut a stick as thick as your finger without the consent of the landowner, and the landowner with whom they have to deal is generally a cranky person who will not allow any one to cut his timber, therefore you find scraggy hedges of all sorts and descriptions. We wonder at their being there. But they are there under this peculiar land system. Then, besides that, there are protection laws for game, and extensive tracts of land are by this means preserved. Where the land is devoted exclusively to timber there is no stock turned in. It is kept as absolutely free from any sort of intrusion by stock or by man, or in any other way. In Ohio, what we want is chiefly the preservation of the forests we now have, and the encouragement to plant trees and the education of the people to the enchanting beauty that would be added by permitting trees to grow, and to plant them along the avenues and along the road-side. The chief thing is to prevent now, the destruction of the forest, which is better than any planting we could have, probably. And I now offer this resolution in reference to this matter:

Resolved, That the Convention respectfully asks the attention of the Legislature to the propriety of providing, by amendment of the Constitution or otherwise, for exempting from taxation a limited amouut of timber land on every farm in the State.

Now, it is no use to talk to a man in regard to having timber, and to preserve it when he can clear it off, plant the ground in corn and derive an income from it, while if it remains in timber he must pay taxes on that land and derive no income from it. All these things given in the paper as reasons why timber should be preserved, may be true, yet the chief reason why it should be preserved is for the public benefit. A man having timber on his lands near my farm benefits me as well as it benefits him. A strip of timber on the West of my farm protects it from the storms of wind that come from that direction. So a piece of timber on my lands, while it may benefit me, will benefit my neighbor and the public. It seems to me that a clause proposing that a certain amount of timber land shall be exempt from taxation —defined in the constitution, or law, might do much in this direction. It is possible that the Legislature will, this winter, provide for an amendment in regard to judiciary. An amendment of this kind might be submitted with it—and in my opinion this amendment would be carried without any serious opposition in the country, and it might help to carry an amendment to give us a judiciary to enable us the better to dispatch business.

F. B. HUFF. Nothing is more true than what has been said in regard to the beauty of the timber in England. It became the fashion in the time of Charles the Second for the nobility to plant trees, and this fashion was copied from one to another, and as this gentleman says, in the country through England, the planting of trees about the homesteads, which render them so beautiful, is, at least, partly due to example. They have been educated up to this.

We have in this country a worthy example in the person of Mr. B. G. Winthrope, who has made it a business to deliver lectures all over the State in which he lives, in regard to village improvement, telling the people how much they may adorn and beautify their homes, and make life worth having through the influence of tree planting, and he extends this influence by combining it with social libraries and different modes of amusements. I certainly hope this measure will prevail, and that this example will become contagious in this State.

The resolution was then adopted.

On motion of H. J. Weller, a vote of thanks was tendered Mr. Huff for his interesting address.

The resolution presented by Mr. Baker, on the previous day, was taken up for consideration.

DR. J. A. WARDER. Mr. President, I do not feel competent to discuss every subject, and this not being particularly in my line, it is not, perhaps, in good taste for me to take up the time of the Convention in trying to discuss it. But we have a man here who is competent, and who will, no doubt, discuss it. I simply rise to call attention to the report from Cornell University, in reference to this matter among others. I presume some of you have received that report, if not, I would advise you to get it. And it is printed not by the funds of Cornell, not by the Great Cornell University, but by money furnished by the ladies.

JUDGE T. C. JONES. I do not wish to add a word, except to say, that I accord with the opinion of my friend that we should have a commission to attend to this matter just as they have in England. There is no progress unless we have such a law as they have in England.

The Chair suggested that Judge Jones give the Convention some information in reference to the operation of the law in England.

JUDGE T. C. JONES. I would say that the exportation of cattle to Great Britain has now reached to more than $13,000,000 annually. I was at a place in England where our cattle had to be landed and killed right on the wharf, not being permitted to be taken further away to be slaughtered. And the same arrangement prevails in

Liverpool and other ports where they have these foreign cattle, where the cattle have to be slaughtered without being permitted to be taken inland. Now, in consultation with one of the largest importers at Boston, whose firm have also a large establishment at Liverpool, I learned that the laws requiring the place of slaughter to be at the landing was a loss to them of from ten to twenty-five dollars a head. In August, when I was there, the weather was warm for England, and they have no provision there for the use of ice, to preserve meat, as we have here. The cattle could not be taken alive to other places, but had to be slaughtered there as in Liverpool, while, if the cattle could have been taken into the country, they would have made a return of that much more—that is, from ten dollars to twenty-five dollars per head more.

One of the greatest advantages of the exportation of our cattle to England has been to convince them of the superiority of our cattle. One man said, when they landed five hundred head of our American cattle one morning, "They be grand beasts." I said, "They are very much the same as you have here." He said, "We cannot make them here." I asked what was the reason they could not, and he said, "Because we haven't got the grass, and we cannot spare the pasture and grain to develop them into the rich beasts like these bullocks are. We have got to force them along by feeding them on turnips and oil-cake, which makes them inferior in flavor to those of your country." In this country we have the grass and the corn by which they may be brought to perfection. They were amazed over there at our fine cattle, and see that they are mistaken about Old England having the best beef. Facts have driven away that boast of Old England. We have the grain and the feed, and have produced the best beef of the world yet.

Another thing is, it is directing our people in this country to know what the best bullock is. We used to think that the great big bullock, which would weigh the most, and was coarse with lumps of fat here and there, was the best to grow, but when these dealers of England came around, we found them wanting clean, small-boned cattle with the fat more evenly distributed, because these big lumps of fat would sell in the market; the tallow not being worth as much as the meat. I might take and show a man my fine Durham bullock, for which he would give me seventy-five dollars, while for a big, coarse bullock he wouldn't give fifty dollars, probably, so that the growing of this coarser stock is comparatively a loss to the farmer. So in every point of view, the export trade of live cattle to England is very important to the United States. We have made a great success in importing beef in quarters, but it is complained that the flavor of beef imported in quarters, though it is kept sweet and healthful, is inferior to that received alive.

The President suggested that in order that our cattle might have the superiority referred to, they should pass an examination in regard to freedom of disease.

JUDGE T. C. JONES. Certainly. When I went there I said to them, we had none of the diseased cattle in Ohio. They said, "We don't know anything about Ohio; we deal with the United States, and we know that pleuro-pneumonia—this lung disease, does exist in some parts of the United States." "Yes," I said, "it does exist in some of the New York dairies, and in some parts of Pennsylvania and in Maryland, and the District of Columbia, and that that was about all." "Very well," said they, "but we have no knowledge of its existence simply in those localities. Your government does not guarantee any such thing at all, and until it does, we must regard the whole of America as being infected"—as they call it, and therefore they are afraid of our cattle.

The resolution was adopted.

The resolution offered by C. Caswell, on the previous day, was taken up.

Mr. Caswell, in support of the resolution, said:

With your permission I will state briefly what I understand to be the object of the first part of the resolution: to induce the attendance of representatives from each Agricultural Society to be present at the State Fair to aid us by their presence, not, however, in the view of acting in an executive capacity with the ten members of the State Board, who are really the executive committee of the State Board.

Mr. Foster. I have been representing here, annually, for about six years, Champaign county, and I do not see any necessity for the resolution that has been offered; for every President or some one delegated by the Ccounty Agricultural Society is a member of this Convention.

The President. The State Society is composed of the Presidents of the county societies.

C. Caswell. I simply wish to say a few words in reply to the gentleman from Champaign. If he is familiar with the law he is certainly familiar, also, with the fact that the law expresses, in so many words, that the President is a member ex-officio for the time being only. The moment this Convention adjourns our membership, or interest, as it were, ceases any further than that of any other citizen of Ohio. That is the portion of the law to which I object. I see no reason why we, as representatives, should come here and be asked to take an interest in the State Board of Agriculture, and in the State Fair as we should, with a law to say that we are members for the time being only. I think there is an inconsistency in the law. I think the President well expressed not only the intention of this resolution, but the real meaning and spirit of the law in his address before the Convention yesterday, when he said the representatives from the local societies are really the State Board of Agriculture, and that the ten members are the Executive Board, to put in practice the wishes of the Convention. I think this is really the spirit of the law. It certainly was my intention in drafting this resolution. But now the law says that we are members of this Board of Agriculture but for the time being. If we undertake to locate the State Fair permanently, which, I believe, is absolutely necessary, and that being the fact, it seems to me we certainly should have as much as one farmer in each county, whose special duty it should be to look after the interests of this State institution; one person who should realize the obligation which he is under to this interest. Under the law as it now stands we have none.

Another important reason, Mr. President, in my opinion, and one of the greatest, is the fact that a change of this kind in the law will do away with any jealousy in the elections with regard to a member's locality. At this time we come here to elect members of the Board, and there is a good deal of scrambling, as we all know there was last evening. Some members were specially pleased with regard to the election, and some were displeased, and it operates against the interest of the State Fair. If we have a member in each county, whose special interest it is to look after this great interest, the different localities will all be satisfied, and the persons doing the clerical work will not matter, and we would thus do away with this strife. I can see no objection to such an amendment. It need not cost a cent more to the State Board of Agriculture, or the local societies, to have their representatives come here and elect this Executive Board to run the State Fair than it now does. I believe it should be the duty of every one of these representatives to attend the State Fair during the Fair time. I think this another important feature.

D. L. POPE. Will the gentleman tell us, really, what change he desires? Will he state, particularly, what changes would result from his suggestion.

By request, the portion of the law referring to the members of the State Board from the county societies was read.

THE PRESIDENT. I have always understood it to mean for the time for which they have been elected, and have considered them as the State Board through the year. Perhaps the construction that might be put upon this law would be that they are not, but I don't so understand it.

C. CASWELL. I think the President entirely correct in his view as to the meaning of the law, but the fact is that the farmers throughout the State do not understand it in that way. Gentlemen understand that they have no responsibility in that direction after the adjournment of the annual Convention.

D. L. POPE. What responsibilities does the gentleman propose they shall have?

C. CASWELL. That they shall be members of the Board during the year to look after the interests of the State Fair in the localities which they represent.

MR. FOSTER. I think there is a difficulty in this matter which, perhaps, the gentleman has not considered. For instance, I now represent our county society, but on next Saturday week I go out of office, and a new man is to be elected. There is to be no Convention of the State Board again until next January, and I would ask him how he will bring in that member?

C. CASWELL. I don't think that pertains to the question. Whether the Board of Agriculture proper have one meeting or more is not the question under discussion. I have at home a copy of the Pennsylvania law, which I intended to bring with me to show how they manage this matter.

D. L. POPE. I would like to have Mr. Caswell suggest what he would have.

C. CASWELL. I don't know that I am properly prepared to say how I would draft a law.

D. L. POPE. But what would you have these members do?

C. CASWELL. To look after the interests of the State Fair.

MR. POPE. In what manner?

MR. CASWELL. In looking after its general interests at home. I believe, Mr.

President, it is just as true in regard to the State Fair that it is as necessary to have members looking after its interests as it is to look after the interest of the local fairs. I represent, perhaps, a society that has as great an interest as any in Ohio, and this interest is only kept alive by the active work of the members in the different localities who make it a special duty to look after its interests, and to be on hand at the time in season, and to look after the interests of their constituents. I believe it is equally true, and much more true, of the State Fair, that this membership should continue and that they should understand that they are the responsible persons for its interest in their immediate localities.

I have observed, Mr. President, in my visiting the State Fair for a number of years, that the exhibitions at the State Fair are from the localities where the members are located, mostly. In the county that I represent, when we had a member of the State Board, I will venture to say, there were more than four times the articles exhibited from that county than there has been ever since. And what is true of our county is true of every other county. I took special pains at the last State Fair to note that fact. Now, providing we had a person to look after the interest of the State Fair in each county, I think that would be just as true of every county. As I said before, while such a change as I have suggested would be a great advantage, I think there can be no objection to it.

Mr. Pitkin. I confess, Mr. President, that I don't know what this resolution means. I don't understand it. I don't know why we should be called upon to pass a resolution that would increase our expenses largely without increasing materially the interests of the Agricultural Society. We meet here once a year as representatives from the different counties throughout the State, I representing one, my friend here another, and my friend over there another. We come here to transact the business which we are required to do. Now it is utterly impossible that we should all meet here from time to time, but we have our Secretary to perform our business during the year. But, I believe with my friend, that we should all do all we can to create an interest in regard to our State Fair, that the exhibition may be a fine one, that the receipts may be large and that the premiums should be paid. But, sir, this must be done through a representative capacity, through the committee we appoint; the committee which we appoint is the State Board we elect, and we trust and confide in them to perform these duties. Now, here are eighty-eight counties in the State, and it would be outrageous for us all to be required to attend the State Fair as members of the Board. I would like if we could do it, but the thing is impossible. Now, there is no provision made for any such thing; and suppose there was, it would draw largely from the fund we would want for other purposes. Now when my friend, or any other person, brings in stock premiums to be paid, or any business pertaining to the society of this nature, there is no reason why the eighty-eight counties should have their representatives assemble here for that purpose when this executive board of ten members can attend to the business. I see no necessity for the passage of this resolution. I am for economy in matters of this kind, while I am in the largest and broadest sense in favor of bringing out all the interest possible in the State Fair. I want that done to the very fullest extent. I know something of what it is to carry on a fair; I have been experiencing that for several years. I want what would be for the best interests of the State, but without this enlarged expense.

Mr. Caswell. I wish to say one word further; the gentleman fails to understand my meaning entirely. I would not wish to add any expense. I see no need of that, whatever. I think every county in Ohio certainly has interest enough in the State Fair to send one of their leading agricultural men here to attend the Convention, or to attend the State Fair. And so far as the work of the Executive Board is concerned, they could do that just as well, providing the member holds his membership during the year, and a little better because they would have a better source for correspondence in the different localities through these members who could do it better than others.

Mr. Pope. I think Representative Pitkin, from Summit county, has given a tolerably clear version of this matter. I do not get from our friend Caswell really what he wants. I think he wants them to be retained as members during the year. I believe the State Board, through its Secretary, at every Fair, has given out special invitations to the President and Secretary of county societies, inviting their co-operation at the State Fair, asking their co-operation in making the exhibits as good and as full as possible from their respective counties. That is a duty which really should devolve upon them. But I apprehend, should the number be increased beyond what it is at present, that the members would be so numerous that the responsibility would be shirked from one to another, and the work not as well done as at present. The gentleman says the responsibility should be upon the different county Presidents. The Board would be very glad, I am sure—having been a member of the Board for some time—to have them assume this responsibility. But if that responsibility were to be put upon them, and the Fair did not prove to be successful in that manner, but would prove to be a failure, I think they would hardly be willing then to accept any responsibilities, but they would fall back upon the Board.

I would be willing to adopt a resolution to the effect that the present delegates should remain members ex-officio during the year, and providing for complimentary admissions or anything of that kind, but I really cannot understand what the gentleman is getting at when he says the expense would not be increased; I cannot see what he expects to do.

Upon motion of A. D. McElvey, the preamble and first resolution was laid upon the table.

The latter resolution was then brought up for consideration.

Hon. Peter Hitchcock. I think the motion to lay upon the table will take the whole subject with it, so that this latter resolution cannot be acted upon. We cannot lay a part on the table without the whole of it going upon the table. A part cannot be laid upon the table, and at the same time another part of it come up before the body for consideration.

Judge T. C. Jones. I will not undertake to discuss with my friend the technicalities pertaining to this matter, or the principles of parliamentary law, but I do not see that this body should be prevented from discussing this subject in a proper form.

MR. HITCHCOCK. I understood when I was up, and should have stated that there was another resolution pending which looked to the same purpose.

A. D. McElvey moved to lay the whole matter upon the table.

The President decided that the whole subject had gone upon the table by the action already taken, and that a motion to that effect was unnecessary.

The Secretary then read the following resolution, which had been presented to the Convention on the previous evening:

WHEREAS, The State Board of Agriculture is without a permanent home; and

WHEREAS, It is desirable that the State Fair of Ohio should be located upon grounds belonging to the State; therefore,

Resolved, That the General Assembly of Ohio are hereby requested to create such legislation as to enable Franklin county to donate the Franklin County Fair Ground to the State of Ohio, or grant to the State Board for such purpose fifty acres off of the ground now used by the State University.

MR. MCCLUNG. The resolution before the Board is the resolution made after consultation with quite a number of gentlemen upon the subject of the location of the State Fair of Ohio. It is not my own product, by any means, but, as the Convention are aware, the time has expired by which the State Fair has been agreed to be held at the City of Columbus, and that is a pertinent question to come before this body, and the natural complications that may perhaps surround it should be provided for.

Now, I do not want to be misunderstood, Mr. President, and gentlemen of the Convention, upon this question, that I am here as a Columbus man to represent, or try to accomplish the end and get the State Fair of Ohio located at the City of Columbus.

I do not care to go into an argument about the advantage growing out of that, unless it were attacked, it might be in reply. But the grounds now held here for the Fair Grounds belong to the Franklin County Agricultural Society, and are in the possession of the Franklin County Agricultural Society, and, as I understand it, are controlled by the Commissioners of Franklin county. Being so controlled, it would, perhaps, be a matter of necessity either to get a lease or the permanent control of the grounds by the State, that there should be some legislative action taken by the General Assembly. This was the point I was looking to when I framed the resolution referring to the present Agricultural Society's grounds; but it is not worth my while here, gentlemen of the Convention, to speak about these grounds to you who are all familiar with them. There is no gentleman here, perhaps, but what has been upon them and understands where they are located, and their advantages which are very excellent, indeed; and so far that question will rest with the Convention. But, I have coupled another proposition with the resolution, and that is this: That in case there are complications growing out of the control of these grounds by the County Commissioners, or by the Franklin County Agricultural Society, such that the State Board of Agriculture cannot control them—as I think the

State Fair should have control of them, or the entire power to control these grounds—that then in that event I was looking towards another object, and I will be frank about it. I think where there is a will there is a way, as a rule, and I believe that if the Franklin County Agricultural Society, with the Commissioners, will reflect the sentiments of the people of the city of Columbus, and of Franklin county, there can be no question but what the State Fair would be permanently located upon these grounds, and that they would permanently belong to the State, and finally grow so that instead of a week's Fair each year we would have an annual exposition of some week's duration. But upon this I do not now care to elaborate. But upon another point, as I have said in case these grounds cannot be reached, or that there are complications that will come in the way, then in the resolution, I have directed the attention of the State Board of Agriculture and the General Assembly to the portion of the State University grounds that are upon the north part of the city, as you are all aware. I want to say one word in reference to those grounds, and that is that they are very beautifully located, having a hill belonging to it which affords a good view of the whole grounds. Say, if you please, that you would take fifty acres of the University grounds proper, and then a certain portion of the ground that could be bought of the McMillen farm on the south side, and which has a hill the entire length, looking over towards the river, making a beautiful ground from which every inch could be seen from the hill that would occupy the upper parts of the grounds, and that would throw your tracks along in a semicircle that would enable everybody to see those grounds.

Now, there is a matter in connection with the grounds that is one of very great importance, in my opinion. There is a very excellent spring on the University grounds that would afford sufficient water for the entire grounds, and which could be carried all over the grounds in pipes, not only for the use of the people, but for the stock. You are all aware that that is a matter of much importance to a Fair, and you gentlemen who have been members of the Board have great reason to think of this important matter. Some gentlemen here who understand the great importance of this, have called my attention to that particular point. Now, that is the condition of those grounds. But there is another question, gentlemen, that has been raised here, and that is antagonized against this scheme, but one that can be got out of the way. That is this, that the grounds are situated in the northern part of the city and you are compelled to cross the railroads to get to the Fair Grounds if they were situated there. Now, that is literally true that you would have to cross the railroads, and it is equally true that there are avenues across those railroads. Of that, you gentlemen are perfectly aware, and in that respect there need be no difficulty, because these other avenues, if used, are amply sufficient for getting to the grounds. Now take, for instance, the bridge over the railroad on Park street,—it is a wide, good bridge, and will carry you in the right direction to Neil avenue,—that is the avenue running in there upon the east side of the grounds. That is one of the thoroughfares. Then there are other routes that may be taken so as to avoid crossing the railroads on High street, and in my opinion, gentlemen, there is no difficulty arising on this account; that is not all, there cannot be, and

I have no doubt that so far as the citizens of Columbus are concerned, there will be no difficulty allowed to interfere with getting to the grounds. They will see that ample communication, north and south, will be provided, and I do not care to follow this question further.

The particular point I make is this—that we want the State Fair located at the city of Columbus; and we believe that would be for the best interest of the Fair. I don't care to go into the argument, because it has often been gone over before. We believe it is the best place for the State Fair, and here are these propositions. Now, in my own judgment in regard to this matter, I have no doubt about one thing; that is, that the proper place to locate the State Fair is on the present County Fair Ground. I think there is no question about that, and I have no doubt if the people of Franklin county were allowed to vote upon it, they would decide in that way, and would be in favor of the County Fair Ground being appropriated for that purpose. I only make the other suggestion in case we are foiled in this matter, if there are any difficulties that cannot be taken out of the way.

MR. PITKIN. I would like to ask how many acres there are in the Franklin County Fair Ground?

MR. McCLUNG. About ninety acres.

MR. PITKIN. How many acres do you propose at the State University Grounds?

MR. McCLUNG. About fifty acres.

MR. PITKIN. It would require legislation to get possession of the Franklin County Grounds, as I understand they are now in the possession of the Commissioners. What do you suppose it would cost to get those grounds?

MR. McCLUNG. The Board, I suppose, can tell that as well as myself. I suppose it would be necessary for the General Assembly to pass an enabling act to allow the Commissioners to dispose of the Franklin County Fair Grounds.

MR. PITKIN. I accord fully with the remarks of the gentleman in this respect. I want, however, to ask another question. How is the water supply at the Franklin County Fair Grounds?

MR. McCLUNG. The water supply is by the use of pumps. There is very excellent water, and a very good supply.

MR. PITKIN. The water supply on the other grounds, I understand, would be very satisfactory.

MR. McCLUNG. My own opinion about it is that there is not in Ohio a better supply of water than this would be. There is an excellent spring and at such an elevation that the water can be conveyed over the entire ground.

MR. PITKIN. Are you fully satisfied that we can get a good supply of water on the Franklin County Fair Grounds?

MR. McCLUNG. I am, sir. Now, Mr. Chairman, there has been a suggestion made to me since I have been talking here in reference to the railroads, that is this: that a large number of the people that would come to the city of Columbus, would want to go directly to those Fair grounds by the railroads—and I should have stated when I was talking about this, that so far as the grounds on the Agricultural Farm are concerned, that they have a street railroad which is in possession of the Consolidated Street Railroad Company of the city of Columbus; so there is one street railroad running up High street to the college, and another up Neil avenue to the college farm. By building, perhaps, eighty rods more road these railroads could be carried down to the grounds I speak of. and give two connections with the grounds by street railroads. There is another thing I want to say about these grounds, that is this: that the railroads in connection with the manufacturing interests, which lie along the Olentangy river, are held in common, so that the freights may go over the different railroads. This has been the arrangement with the rolling mill, furnace, bent-works, etc., up there. This being the case, the road could easily be extended to that Fair Ground, it being but a short distance from that locality, and freights could then be carried over all the roads to the Fair Ground. I have no doubt this could very easily be done so that the Fair Grounds could be reached by all the railroads coming into the city of Columbus.

Mr. McElvey I heartily endorse the resolution offered by the gentleman from Franklin county (Mr. McClung). It seems to me eminently fit and proper that the Capital City should be selected as the place for the location of the State Fair. Those of you who have been upon the present grounds will bear me out in the opinion that it is probably the most suitable Fair Grounds in the State of Ohio. I think it would be a wise action of this body to pass this afternoon, the resolution offered by the gentleman, and forever put a stop to the continual squabble about the location of the State Fair. The location should be a central one, and the city of Columbus has facilities and inducements for visitors to come here, equal to that, probably, of any other city in the State. It would be a pleasure to me to have this matter promptly settled by the passage of this resolution.

Mr. Buckingham. If the State Fair is to be located permanently, and at Columbus, I have no doubt, in my mind, but that the grounds at the State University would be more convenient, as they are situated near the depot where passengers would come. I don't see why fifty acres, well laid out and the buildings properly planned and placed on that, would not be sufficient grounds to use for the State Fair. Personally, I am opposed to a permanent location of the State Fair. I think it is the experience that it is not best, and probably three-fourths of the State Board will agree with me on that point. They have had more experience than many here. I think I have missed but two State Fairs since 1862. It is not the amount of money made at the Fair only; that we are to consider. It may be a success financially, when it may not be a success otherwise. The State Fair is an educator, therefore I think we should give the various parts of the State the advantage of that education by taking it to four or five different points in the State, like Cleveland, Dayton, Toledo, Columbus. Cleveland can certainly accommodate the people as well as Columbus. The hotels at Toledo are better than those at Columbus. Dayton has accommodated it time and time again. We never came out of Dayton but what we had a fair in all respects, both as regards the different departments of stock, and the various other departments, as well as financially. You remember that when we were on the migratory system, every city was anxious to have it come there, and made arrangements with the railroad companies for half-fare tickets, and stock and all articles on exhibition were carried free and returned free. Since it has been in Columbus, for the last four or five years, it is very well known that the Cleveland and Columbus road—I think it is—has charged exhibiters for bringing their products, and last year, I understood that the Scioto Valley road did the same thing, at least one way. The Baltimore and Ohio Railroad has charged full rates one way with the promise to return a part of the amount paid ; sometimes it has returned it in a month, and sometimes it has been a longer time. And they have got the fare from two cents a mile up to full round fare since it has been located at Columbus. During the last State Fair the Baltimore and Ohio commenced carrying passengers at reduced rates until Thursday or Friday of the Fair, when they refused to do so any longer, and those low price tickets were all taken off, at least as far as Zanesville. I think they did not do it from Newark here, because from that point they had the opposition of the Pan Handle road. I know many came over to our place at six o'clock on Thursday morning, supposing they would get round trip tickets at two cents a mile, at which rate they had been selling, but could not get them, and it made them mad and they said they would go home, and did not come to the Fair. With such things as these going on, if you locate the Fair permanently you will find all the railroads getting back to the plan of charging full fare, and charging freight one way, or both, probably.

Any man who has had experience in getting stock to a Fair, knows something about the trouble with which it is attended, and the liability to catch disease. The cattle are often made to occupy cars on which diseased cattle have been transported, and there is considerable danger from that source, and we know it is enough to pay the fare one way without having to pay back again.

As an educator, the State Fair cenrtainly should be migratory, and I think, in New York they have adopted the right plan. They have selected five places in which to hold the State Fair in regular turns, so at the end of five years they get back to the starting point.

JUDGE JONES. Like my friend from Belmont, I feel the pressure upon us now, and in view of the great importance of this question—certainly much more important than any question that we have had before this Convention,—at this late hour, in the proceedings of the Convention, and with the very limited attendance we have here now, it seem to me that it would be most unwise to attempt the decided action that is proposed by these resolutions.

Now, living in Delaware county adjoining Columbus, my sympathies are for anything of this sort that is consistent with the public interests of the State. I am proud of the Capital City, as every citizen of Ohio ought to be. Its solid business character, and the general accommodations that are generally furnished here, are, probably, as good—all things considered,—as they would be elsewhere. It being the capital or headquarters of the business of the State, the people are, as it gets to be the case anywhere else in such places, necessarily less attentive to strangers than in towns that are not so frequently visited.

But now, the question is, whether Columbus can afford to ask for a thing that would be opposed by the State in general, or that if they should succeed, would prove disastrous in reference to the thing they intended to accomplish. I think we should take this matter under careful consideration. There is one thing right here that I will say now: I am opposed to the matter looking to the taking of a part of the Agricultural Farm for a Fair Ground. That institution was founded in accordance with provisions made by Congress, which specify that these colleges shall be experimental farms, or farms for experiment. The farm here was bought by the liberality of citizens here, with the express understanding that it should be for that purpose, and the grounds were sold for a price way below the standard, with the agreement that when bought, the College was to be built there, and that it was to be kept by the State for this purpose. It was to be a college for the education of the industrial classes, especially the rural classes, and when asked why we should locate the College in the city of Columbus, or any city at all, our answer was that we proposed to make, in connection with it, a farm, and have rural surroundings so that the students, instead of thinking they were in the city, would, by its surroundings, be reminded that they were all the time on the farm, and it was expected it would be used as an out-door museum to illustrate the teachings that would have reference to the great interests for which it was established.

MR. McCLUNG. We want an experimental farm, and want to know if that would not be in that direction, if we had in connection with it a Fair Ground, properly arranged and kept in order?

JUDGE JONES. The gentleman's proposition would change it from an experimental farm to a Fair Ground; he would want a high fence around it, and to have stalls through it, and then during the season of the time that elapsed between Fairs it would, probably, be neglected, as is too often the case with our Fair Grounds. We have tried it here in Columbus, and we see how our beautiful Fair Ground is neglected during the whole interim between Fairs There would have to be a police force employed all the time to take care of it, or it would go to ruin. The gentleman proposes to take about fifty acres. There are now but about three hundred acres, and we want every bit of it. We have not got more than one-third as much as they have in Illinois in connection with their college, and we want it all to maintain those rural surroundings I have referred to, and do not want anything to interfere with the interests of this institution. It was proposed, some time ago, to make a street through the grounds, and I opposed that. And as our old Dutch friend here (Leo Weltz) once said: "I declare, when this Board of Trustees come to that spring, I don't see how, consistently, these men can ever get away from that spring." [Laughter.] And in reference to the spring, unless the gentleman goes into the bottom with his Fair Ground, I don't see how he is going to convey the water from the spring over the Fair Ground. I don't think he can do it.

I agree with him that the McMilllen farm below there would be a good place for a Fair Ground.

But I wish to call attention to the matter which should be considerd, referred to a minute ago by Mr. Buckingham; that is, whenever you locate the Fair the rates on railroads will go up. Railroads are things we cannot readily manage. It is generally a fact, also, that the people living in the locality in which the Fair is held get about one-half, or more than one-half of the premiums, I understand, that are awarded. Other parts of the State complain about this thing of a permanent location. It is true there are advantages, such as Mr. McClung has referred to, and I am not going to say that it will not be found expedient to hold the Fair in one place, but to hold the Fair in one place with the idea that it cannot be taken away, is to subject ourselves to all the demands of the railroad companies and others that may be put upon us. I therefore move, in view of the importance of this subject—and believing that nobody that has been in the habit of deliberating upon such things, would dream of passing it, without due consideration by a committee, for a considerable length of time—that it be referred to the Ohio State Board of Agriculture to report upon the whole subject at the next annual meeting.

Mr. McClung. Mr. President, I am aware that my friend, Judge Jones, has a summary way of shutting off the arguments of others. I am aware of the reasons of Judge Jones for not taking fifty acres from the lands belonging to the University.

Now, I am one of the original gentlemen, who, with my friend, Judge Jones, had the privilege of locating those grounds, and I wanted a thousand acres instead of what we did get. I think I was the largest acre man in that party, and at that time I think a number of gentlemen—and I think my friend, with a number of the party—were inclined to have the College an old classical College. In other words, that the languages should be prominent, and that, perhaps, should be a controlling feature, and there was quite a difference in the Board in reference to that question. I don't care about taking up that question now; I only want to talk about this one point—that is, so far as the fifty acres of ground off the south side, which shall be under the control of the State of Ohio and the State Board of Agriculture. This is not subject, in my opinion, to the line of argument that my friend, Judge Jones, has submitted. If that be true, I think our Franklin County Agricultural Society will walk a little shy about having the State Fair located upon their grounds. I understand, Mr. President, and gentlemen, that we are living in a progressive age, and at a time when there would be such an interest in the State of Ohio that the grounds thus set apart would be carefully taken care of, and would be ornamented and made attractive, so that they would be visited by a large number of visitors all the time that would insure their being taken care of. I don't fully understand that as he does, but I understand that in other States there is no trouble in keeping grounds of this kind in proper order, and I think that would be the proper way in which to keep them. I don't know but that there ought to be a police force, or a special policeman to look after its details—after every detailed interest—but the gentleman's argument seemed to be to the effect that nobody would look after it, and everything would go to destruction. Now, if we would have fifty or sixty acres, as the case may be, properly fitted up, and have nobody to look after it, there might be some force in the argument; but I would say, that if fitted up in the proper manner, we could not afford to allow it to be injured, but would have a police force to take care of it, so that I think his argument in that respect is not of much force. Now, I wish to say, that this is no scheme to deteriorate from the Ohio State University. It is not believed it would deteriorate from that institution. I am now only defending my argument, and not making an argument for the other side at all. And it is not certain what a well-regulated fair-ground there might be made. We believe it should and would grow into an Exposition in which the buildings would be what they ought to be, to carry out this thing and make the gathering of greater interest, and we believe that instead of losing the interest in them, they would become so attractive that that very feature would be a thing in the direct line of the purposes of the College.

Take, for instance, the rural interests and the mechanical interests that cluster around that institution; take, for instance, the buildings that would be located there, and then, instead of having the Fair a week, and probably in very doubtful certainty about the weather that likely would destroy your Fair, we would have an exposition, continuing through several weeks, worthy of the State of Ohio, upon grounds worthy of the State, with buildings of a substantial structure and beautiful in appearance, with walks and drives to correspond. And any gentleman here listening to me, will admit that that is what it ought to be, and that if the State Board of Agriculture, and the Agricultural and Mechanical interests of Ohio mean to do anything, it must finally come to a head, and that we must not gather and waste. Upon the plan we have been holding our Fairs we gather for a year or two, and then waste much that we have accumulated; but in the way I have suggested we would make improvements which would be thorough, attractive, and permanent. Now that, in my judgment, is the course we ought to pursue. I am not in favor of the idea of standing still; I am for progression. I like to see young men stepping to the front, because they have force of character and business enterprise. I, for one, want to see things go forward. I don't believe in this thing of pulling down and going backward.

Now, one word in reference to the railroads. That seems to be one of the arguments used, that, if the Fair is permanently located, the railroads will get their grip and take advantage of us. Now I ask, if the railroad is not a creature of legislation, as other things are? Now, what is the matter of fact? How has it been in the last year in the City of Columbus? There have been a hundred passenger cars coming from the different railroads into Columbus, on some days. What was the cause of this? Why, it was the liberal reduction in the rates made by the railroads to induce people to come here, and in this way to patronize the railroads. And not only that, but go into any large city—Cincinnati, Cleveland, and other places—and witness these same facts. Now, to the point of my argument: If this be true, that the Fairs heretofore have been on the principle of gathering up and then wasting and pulling down, I would ask if the first thing in a permanent location would not be to increase the interest? Now, if the word would go out from this city that we have here a beautiful Fair Ground, that we have large and beautiful buildings, and everything attractive—a place worth going to see—I think that the railroads, understanding this, and understanding their own interest—I might say their own selfish interest—that we would not be exposed to any imposition on their part. I don't believe the railroads would be so foolish in this respect, but they would send excursion after excursion from the different parts of the State, and that people would come to an exposition such as we have described, and could come here at cheaper rates than to any other place, and our Fairs would become a matter of great interest.

Now, there is another point that I wish to speak of; that is, in reference to those that have their stock on exhibition. They have to run the risk of loss by disease, and otherwise, as my friend has claimed. Why, my friend here would very readily take his short-horn bull and run all the risk in that respect. He would take his fine herd and short-horn bull to the Fair if he thought he would break half a dozen of heir necks.

JUDGE JONES. No, no. You are entirely mistaken.

MR. MCCLUNG. I understand that when the State of Ohio competed with Kentucky for premiums at Dayton, and carried the premiums off for the herd, these gentlemen here told me they would not stand on expenses, but they bought herd after herd, regardless of cost and expense of getting them to the railroad station. There was nothing in the way then. Their interest was the same then as the selfish interest of the railroads I have been talking about. They felt it was to their interest to get a premium on their stock. But I believe this is not pertinent to the question.

I want to say a word about another matter, since my friend, Judge Jones, used to be in the same boat as I was in regard to it. He and other gentlemen can well recollect, when there was a rainy season, how we looked down our noses; how serious we all looked; and it was for what reason? Because the State of Ohio had taken the whole risk of putting all the interests of the Fair in one week's short duration, with all the expenditure of money, and all the advertisements, and all the paraphernalia liable to be destroyed by one interference of that kind. Now, I believe we have got to that point in the interest of Agriculture in this State, that we ought to look forward to a time when we shall not be subjected to that condition of things, but that we ought to have two or three weeks, and that these two or three weeks ought to be weeks of careful deliberation, and that we should not hurry here in crowds for a few days; but that we should have well digested plans, and have them well carried out in regard to this exposition. I think this would be a decidedly better plan than to have it crowded into a week. I am in favor of the people of Cleveland having their Fair, and making it a permanent thing,—having their buildings permanent and complete, and everything beautiful and attractive about them. I am in favor of Dayton, and Toledo, and other places doing the same thing. I am in favor of every town, having a sufficient population, that can draw a sufficient number outside and around it, having their Fairs carried on in that way, and am in favor of the State Fair being, as it should be, a grand school for the gathering of the people from all sections, and for having accumulated here an exposition worth coming a great distance to see. I insist that we should progress, and not make a backward movement. I am in favor of our State Fair of Ohio taking a step forward, and, in my judgement, I think we would then be certain to have a much more satisfactory Fair, and that the general interests of Agriculture and Mechanics would be greatly promoted by it; much more so than by running from one place to another with our State Fairs.

MR. HITCHCOCK. Is not the question upon the reference to the Board of Agriculture, to report next year?

MR. MCCLUNG. I want to ask the pardon of the Convention for this one thing. I only want to state that my friend, Judge Jones, and I, were in consultation with our friend from Geauga, here, who seems opposed to this measure. We had a consultation as to whether this Convention was to be held only one day, and we were then to skedaddle and go home. I made this remark, which was sanctioned by Judge Jones and Maj. Millikin, that when an earnest set of men come together and take up questions for discussion, whether we should not devote more time to deliberating upon them. Men who are in earnest in this body will hardly go away if we determine to hold the Convention over. And while I have been in earnest in regard to this matter, you gentlemen have been in earnest, no doubt, in protesting against it.

JUDGE JONES. One word in reply to my friend who has just taken his seat. Like myself, he has been a member of the Legislature. I would ask him what is the rule with regard to important measures in that body? He knows very well that they have to be read upon three different days, and that they have to be passed by a majority of the Legislature, not of those in attendance, but of the whole body. Here is a measure of great importance—as important as any we have had before us during our session—and my friend, in his zeal, wants us to decide in two hours upon this matter. I say that would be the most extraordinary thing I ever heard of.

MR. FOSTER. I, too, would say, that this is a matter of much importance, and I don't think we should vote on it now. I would not know how to vote on it now.

MR. MCCLUNG. This is a very interesting question, and if members would go to our State Agricultural reports they would find that this question has been before us year after year, and I regret that my friend from Champaign does not recognize the fact, that no question has been so much before the Board, and so continually and thoroughly investigated as this one; and now, when report after report has been made, and the matter investigated, I am surprised that Judge Jones should protest against a decision in this way. These questions have all been discussed frequently, and now I ask, in the name of common sense, are we going to get to an end of this thing? I want to see a decision upon this matter. I don't believe we should be continually discussing these preliminary questions.

MR. CHANEY. I don't believe that we can move the State Fair about, or definitely locate the State Fair yet, because it is not definitely settled in the minds of the people. I think the Capital, here, is the place fixed upon in their minds, if it is made permanent, and also that the County Fair Grounds are the grounds fixed upon for the purpose. The one question is yet, shall we obtain those grounds? There are complications, I hear, that many members of the Convention do not understand, and the very haste of my friend McClung, I fear, may, perhaps, be directly against what he desires. It will take time to acquire those grounds. In the first place, as far as the Legislature can go, as I understand, is, to leave it to a vote of the people of the county. And while, perhaps, many outside of the City of Columbus would oppose it, there is a large majority in the City of Columbus that would oppose the donation of those grounds to the State of Ohio, and why? Because they do not want them closed to their public entertainments, to public drives, and for purposes of that kind. And while they would be as liberal as any other city in Ohio to a State Fair, as gentlemen of the State Board have appreciated in the past, and while they will do as much as any others, there are the means by which the State Fair can be held here without owning those grounds, and we can thus get rid, also, of this idea that the railroads, if the Fair be permanently located here, will take advantage of us as they might do—as it is feared by some, at least—if the grounds were permanently owned by the State. I, myself, would desire that the State Board owned its own grounds, and that we should have such improvements upon them as would be worthy of the State of Ohio. But I believe many of those improvements would be put there by the manufacturers of the City of Columbus themselves, and that, with the improvements, it will virtually be a permanent location—however, liable and subject to be removed, if there is any arbitrary action on the part of the railroads, the City of Columbus, or others. I think, in the end, it will be for the interest of the Fair if the matter be left as it is, and see if satisfactory arrangements can quietly be made.

The motion to refer to the State Board was then agreed to.

Mr. Foster offered for adoption the following resolution:

Resolved, That the new work of the State Board, in collecting prompt and accurate crop statistics, and in conducting Farmers' Institutes or Agricultural Conventions in different counties of the State, and in other ways promoting agricultural knowledge and intelligence, meets the full approval of this Convention.

On motion of D. L. Pope, a vote of thanks was tendered to the Senate for the use of the Senate Chamber, and to the Sergeant-at-Arms for his services.

On motion of Mr. Chamberlain, Secretary of the State Board, a vote of thanks was tendered to President Orton and Mr. Reed, for the interesting papers read before the Convention.

On motion, the Convention then adjourned.

OHIO STATE FAIR, 1880.

Held at Columbus, August 30th, 31st, and September 1st, 2d and 3d.

RAILROAD ARRANGEMENTS FOR 1880.

The State Board of Agriculture made the following railroad arrangements for the benefit of visitors and exhibiters at the State Fair:

PASSENGER FARES.

All the railways terminating in, or passing through Columbus, will carry visitors at excursion or otherwise reduced rates of fare.

FREIGHTS.

The following roads will carry freights free to exhibiters, under the following regulations, viz.:

First, The exhibiter to pay full rates of freight from the point of shipment to Columbus, taking a shipping bill and receipt from the railway company for the same.

Second, To have said articles of freight regularly entered upon the exhibition books of the State Fair, and returned over the same road over which they were originally shipped, WITHOUT CHANGE OF OWNERSHIP, certified by the Secretary of the Fair. The articles will then be returned free, and upon the return of the articles to the original point of shipment, the shipping bill, receipt, and certificate from the Secretary to be placed in the hands of the local freight agent, who will attend to having the amount originally paid by the exhibiter refunded to him.

Columbus and Toledo Railroad.
Columbus and Hocking Valley Railroad.
Columbus, Springfield and Cincinnati Railroad.
Cincinnati, Sandusky and Cleveland Railroad.
Baltimore and Ohio Railroad.
Pan Handle road, branches, and lines in Ohio, that is to say:
From any point on the Cincinnati and Muskingum Valley road.
From any point between Pittsburgh, Wheeling and Columbus.
From any point between Logansport and Columbus.
From any point between Indianapolis and Columbus.
From any point on the Little Miami road (Cincinnati and Columbus).
From any point between Richmond (via Dayton) and Columbus.
Cleveland, Mt. Vernon and Columbus.

"BEE LINE," AND "SCIOTO VALLEY."

The C. C. C. and I. Railway, or "Bee Line," and the Scioto Valley Railway will return freights free which have not changed ownership, but not refund any of the amount originally paid. This applies to the roads—

From Cleveland to Columbus.
From Galion to Union City.
From Springfield to Delaware.
From Portsmouth to Columbus.

SPECIAL PREMIUMS.

ESSAYS, ETC.

The essays to be sent to the Secretary at Columbus, on or before the first of January, 1881, and the awards to be made during that month.

ROADS.

For the best accepted essay on county road-making, based on actual experience, the different soils and surroundings of the road to be considered. Premium, $25.00.

FARMS.

The best accepted detailed report of the best and most profitably managed farm, stating the number of acres in each crop, and the method of management. Premium, $25.00.

CROP EXPERIMENTS.

To the farmer of Northern Ohio and Southern Ohio, who will experiment, and present to the State Board of Agriculture the most clear and intelligent report of the results on the following field crops, viz., wheat (winter and spring), oats, corn, clover, potatoes, and other root crops, or either two of the above named, will be awarded a premium of $50.00. The experiments to be made on not less than one acre of land, and the results given, with farm-yard manure, with one or more artificial fertilizers, and without manure; also, a statement of the different depths of cultivation, times of plowing, seeding, etc. Entries to be made by the first day of June, 1880. On or before the first day of July a committee of the State Board will visit the farms of the experimenters, when the crops shall be exhibited to said committee, who will take full notes of same, and report the appearance at the next meeting of the Board. The experimenter shall send in his report by December 1st, 1880, the award to be made at the annual meeting of the Board in January, 1881. The experiments on winter wheat to commence in the fall of 1880, and be carried through the spring and summer of 1881, when they shall be reported with the spring crops of that year.

COUNTY AGRICULTURAL REPORTS.

To the County Agricultural Society furnishing to the President of the State Board of Agriculture, at the time of the annual convention the most full and complete "written report" of the condition of agriculture in the county, will be awarded a gold medal. To the second best report will be awarded a silver medal, and to the third best a white medal; the medals to be suitably engraved and encased.

ENTRIES AND TERMS.

An entrance fee of 5 per cent. of first premium will be charged on all entries of live stock, except Sweepstakes and Speed Classes, which will be 10 per cent. of amount offered. Any person may enter as many different articles as he or she may own in any of the other departments, free of charge.

The Committeemen are requested to report themselves to the Treasurer at the entrance gate, and he will direct them to the member in charge of the department in which they are to serve, in order that they may be furnished with an appropriate insignia.

PRICE OF ADMISSION.

One person to all parts of the ground and Grand Stand, 50 cents.
Horses and vehicles, free of charge.
Children under ten years old, half price.

ORDER OF EXHIBITION.

IN THE HORSE RING.

There will be no exhibition for premiums in the Horse or Cattle Rings on Monday, August 30.

Tuesday, August 31.—At 10 o'clock a. m., Jacks and Mules, Book 10; at 10½ a. m., General Purpose Horses, Book 3; at 1 p. m., Roadsters, Book 2; at 2 p. m., Breeders' Stake for three year old Trotters, Runners, and 2.30 Class Trotting.

Wednesday, September 1.—At 10 o'clock a. m., Draft Horses, Book 4; at 11 a. m., Matched Horses, Book 7; at 12 m., Geldings and Mares, for Light Harness, Book 5; at 2 p. m., Runners, free for all Trotting Stallions, and 2.40 Class Trotting.

Thursday, September 2.—At 10 o'clock a. m., Thoroughbreds, Book 1; at 1 p. m., Saddle Horses, Book 6; at 2 p. m., Runners, 3 minute Class Trotting, and 2.20 Class Trotting.

Friday, September 3.—At 10 o'clock a. m., Draft Sweepstakes, Book 9; at 11 a. m., Thoroughbred and Roadster Sweepstakes, Book 8; at 2 o'clock p. m., Grand Parade in front of the Grand Stand in the Horse Ring, of all the premium animals; Double Team Trot, 2.20 Class Pacing, 2.30 Class Trotting; Breeders' Stake for two-year old Runners.

IN THE CATTLE RING.

Tuesday, August 31.—At 10 o'clock a. m., Hollanders or Holsteins, Book 16; at 11 a. m., Dairy Stock, Book 17; at 1.30 p. m., Ayrshires, Book 15; at 3 p. m., Jerseys, etc., Book 14.

Wednesday, September 1.—At 9 o'clock a. m., Herefords, Book 13; at 9.30 a. m., Angus, Galloways, etc., Book 16½; at 10.30 a. m., Devons, Book 12; at 1.30 p. m., Shorthorn Bulls, Book 11.

Thursday, September 2.—At 9 o'clock a. m., Work Oxen and Steers, Book 18; at 10.30 a. m., Fat Cattle, Book 19; at 1.30 p. m., Shorthorn Cows, Book 11.

Friday, September 3.—At 9.30 o'clock a. m., Ayrshire, Jersey, and Holstein Sweepstakes, Book 23; at 10.30 a. m., Devon and Hereford Sweepstakes, Book 22; at 11 a. m., Breeders' Herd, Book 20; at 2 p. m., Exhibiters' Herd, Book 21.

SHEEP.

Tuesday, August 31.—At 10 o'clock a. m., Downs and Fat Sheep, Book 27; at 1 p. m., Leicesters, Book 26.

Wednesday, September 1.—At 10 o'clock a. m. and 1 p. m., Merinos, Book 24.

Thursday, September 2.—At 10 o'clock a. m., Long Wools, Book 25; at 2 p. m., Sweepstakes on Fine Wools, Book 28.

Friday, September 3.—At 10 o'clock a. m., Sweepstakes on Long Wools, Book 29; at 11 a. m., Sweepstakes on Downs, Book 29½.

SWINE.

Tuesday, August 31.—At 1 o'clock p. m., White Breeds, Book 32.

Wednesday, September 1.—At 10 o'clock a. m., Poland China, Book 31; at 2 p. m., Berkshires, Book 30.

Thursday, September 2.—At 10 o'clock a. m., Essex, Book 33; at 11 a. m., Suffolk Breeds, Book 34; at 1 p. m., Sweepstakes, Book 35.

POULTRY.

Thursday, September 2.—At 10 o'clock a. m., Book 36.

SECOND DEPARTMENT.

Wednesday, September 1.—At 10 o'clock a. m., Plows, Drills, and Cultivators, Books 43 and 44.

Thursday, September 2.—At 10 o'clock a. m., Hay and Harvesting Machines, Book 40, and Agricultural Machines, First Division, Book 41; at 12 m., Agricultural Machines, Second Division, Book 42; at 1 p. m., Machinery, Engines, etc., Book 38; at 3 p. m., Shop Machinery, Book 39.

THIRD DEPARTMENT.

Wednesday, September 1.—At 10 o'clock a. m., Worked Metals, Book 46; at 1 p. m., Stoves, Castings, etc., Book 47.

Thursday, September 2.—At 10 o'clock a. m., Household Implements, etc., Book 49; at 11 a. m., Glass, Crockery, etc., Book 50, and Chemicals and Minerals, Book 51; at 1 p. m, Vehicles, Book 48.

FOURTH DEPARTMENT.

Wednesday, September 1.—At 10 o'clock a. m., Household Fabrics, Book 53, and Crochet and other Ornamental Work, Book 56; at 11 a. m., Needlework, etc., Book 54; at 1 p. m., Braiding and Embroidery, Book 55, and Cabinet Ware, Book 57; at 2 p. m., Leather Manufactures, Book 62, and Stationers' Ware, Book 59.

Thursday, September 2.—At 10 a. m., Factory Goods, Book 58; at 2 p. m., Boots, Shoes, etc., Book 61, and Merchants' and Dealers' Class, Book 60.

FIFTH DEPARTMENT.

Wednesday, September 1.—At 10 o'clock a. m., Flour, Grain, etc., Book 66, and Bees, Honey, and Apiarian Supplies, Book 72½; at 11 a. m., Corn, etc., Book 66½; at 1 p. m., Cheese, Book 67, and Sweepstakes on Cheese, Book 68; at 2 p. m., Butter, Bread, etc., Book 69.

Thursday, September 2.—At 10 o'clock a. m., Honey, Pickles, and Preserves, Book 70, and Potatoes and other Root Products, Book 71; at 11 a. m., Vegetables, Book 72.

SIXTH DEPARTMENT.—IN FRUIT HALL.

Wednesday, September 1.—At 10 o'clock a. m., Summer and Fall Apples, Book 74, and Peaches, Quinces, and Plums, Book 77; at 11 a. m., Winter Apples, Book 75, and Pears, Book 78; at 1 p. m., Plate Apples, Book 76.

Thursday, September 2.—At 1 o'clock p. m., County Fruits, Book 79; at 2, p. m., Grapes, Book 80, and Native Wines, Book 81.

IN FLORAL HALL.

Wednesday, September 1.—At 1 o'clock p. m., Cut Flowers, Book 83; at 2 p. m., Cut Flowers, Book 82.

Thursday, September 2.—At 10 o'clock a. m., Plants and Flowers, Professional List; at 1 p. m., Plants and Flowers, Amateur List.

IN FINE ART HALL.

Wednesday, September 1.—At 2 p. m., Philosophical Instruments, etc., Book 86.

Thursday, September 2.—At 10 o'clock a. m., Paintings and Drawings, Book 84; at 1 p. m., Sculpture, etc., Book 85.

Friday, September 3.—At 10 o'clock a. m., Musical Instruments, Book 87.

RULES AND REGULATIONS.

All articles and animals for competition must be placed in their proper position by Monday evening, August 30, otherwise they will be positively excluded from competition.

The Board will strictly adhere to the above rule, for the purpose of giving a full programme of exercises on Tuesday, August 31.

I. Entries *must* specify the owner's name, and the *name*, age, sex, and description of the animal offered; age of horses to date from the first of January of the year foaled.

II. No animal to be entered in the name of any other than the *bona fide* owner. Matched horses must be owned by an individual exhibiter, or a business firm. Should any be otherwise entered, they will forfeit to the society any premium awarded by the Judges.

III. An animal entered for exhibition in one class cannot compete for a premium in any other, except in Trotters and Sweepstakes, and in Rule IV.

IV. A single animal may be exhibited as one of a pair or herd.

V. Each horse shall be exhibited to the satisfaction of the Awarding Committee.

VI. Exhibiters are required to have their articles entered on the books at the

Secretary's office before they are placed within the enclosure. On the entry of the articles, duplicate cards will be furnished, with the number and class, as entered at the office, one of which is to be placed on the article to be exhibited, and the other will be retained by the exhibiter until the close of the Fair, and, on presentation to the Superintendent in charge of the department, will be an order for the article corresponding in number.

VII. Exhibiters must *see to the delivery* of their articles upon the grounds, and to the *Superintendent of the appropriate department;* and the society cannot in any case make provision for their transportation, or be subjected to any expense therefor, either for their delivery at or return from the grounds; but all expenses connected therewith must be provided for *by the exhibiter.*

VIII. Persons exhibiting thoroughbred animals will be required to furnish a pedigree of the animals to be exhibited, to the Secretary, at the time of making the entry, and a duplicate to the member of the Board in charge when the animals are exhibited to the committee. For the convenience of exhibiters, reference may be made to the number in the Herd or Stud Book, instead of giving the full written pedigree.

IX. Evidence will be required that the animals exhibited as *Breeders* are not barren, and no award shall be made where there is unsoundness in breeding animals, if there is any question as to its transmissibility.

X. No person other than the Judges will be permitted to go into the ring where the stock is exhibited, except the officers of the society or the Superintendents.

XI. No stock will be permitted to enter the ring unless under halter, and in care of a groom.

XII. Horses, Cattle and Sheep will be exhibited in the ring prepared for the purpose, and the premium ribbons or cards attached by the Judges before leaving the enclosure. *First Premium*—RED. *Second Premium*—BLUE. *Third Premium*—WHITE.

XIII. No animals or articles shall be removed before the close of the exhibition without the permission of the member of the Board in charge of the department in which the article is exhibited. Every exhibiter will be required to have his articles on the grounds by Monday evening, and if delayed beyond that time, *they cannot, without the consent of the Board, come in competition for premiums.*

XIV. The State Board will take every precaution in its power for the safe preservation of stock and articles on exhibition *after* their arrival and arrangement upon the grounds, but will not be responsible for any loss or damage that may occur. Exhibiters are desired to give attention to their articles, and at the close of the Fair to attend to their removal.

XV. If any disrespect is shown to the award, or to the Awarding Committee, by the exhibiter or his agent, he shall forfeit all the awards made to him, and the member in charge shall report the same to the Board at its first subsequent meeting.

Forage for Stock.—For the convenience of exhibiters, hay and straw will be supplied upon the grounds, without charge, during the week of the Fair, in the following quantities per day: Cattle, 20 lbs.; horses, 15 lbs.; sheep, 3 lbs.; and straw sufficienty for bedding. If animals are entered for competition, and not exhibited in the ring in the class in which they were entered, they will be charged at the rate of one dollar per day for use of stalls.

Exhibiters in the live stock departments will be required to display over each stall or pen occupied by their stock a placard containing the name, age, and breed of the animal occupying the stall or pen, and also the name and post-office address of the owner. The placard will be furnished and filled up at the Secretary's office.

Arrangements have been made with a responsible party to furnish oats and corn on the grounds at market prices, in quantities to suit purchasers.

GENERAL INSTRUCTIONS TO COMMITTEES.

I. The Committeemen are requested to report themselves to the Treasurer at the entrance gate, and he will direct them to the member in charge of the department in which they are to serve, in order that they may be furnished with an appropriate insignia that will admit them on the grounds during the Fair.

II. No person who is an exhibiter can act as Committeeman on the class in which he exhibits, or upon stock or articles in which he has an interest.

III. *When articles or animals are not deemed worthy, the Committee will refuse to award a premium.*

IV. No person will be allowed to interfere with the Committees during their adjudications; and any person, who by letter or otherwise, attempts such an interference, will be excluded from competition, and if the Board is satisfied that a premium has been obtained by fraud, then such premium shall be withheld.

V. Committees will report the animals entitled to premiums only. Committees shall ballot for *first* award, without previous consultation.

VI. If there is not a majority agreeing on the first ballot, then the members of the Committee will compare views as to the relative merits of the animals, without expressing individual preferences, and a second ballot then will be taken.

VII. If, after balloting, the Committee is satisfied that no agreement on award of premium can be had, then the members in charge will add another person to the Committee, and his award shall be confined to the animals only that have received ballots from the original Committee.

VIII. Any animals or articles which, in their opinion, deserve a special commendation, will be so reported.

IX. If there be any question as to the regularity of an entry, or the right of any animal or article to compete in the class, the Committee shall report the same to the member in charge, for adjustment.

X. The Committee on Fat Cattle will give particular attention to animals submitted for examination. It is believed that, all other things being equal, those are the best cattle that have the greatest weight in the smallest superficies. The Committee will require all the animals in this class to be weighed on the scales on the grounds, and will take measures to give the superficies of each in the reports. *Before awarding the premiums, the Committee will require of the competitors full statements as to the manner and cost of feeding.*

REPORTS.

The Committee will be expected to give the *reasons for their decisions*, embracing the valuable and desirable qualities of the animals or articles to which the premiums are awarded. And, as the one great object of the society is to collect valuable information upon subjects connected with Agriculture, the several Awarding Committees are requested to gather all the information possible from exhibitors, in their respective departments, and make their report as full as circumstances will permit.

The Committee will make its report of awards to the member in charge as early as possible after making the awards.

A copy of the entry-book will be given to the Chairman of the Committee, if he desires, so that he may write a full report, embracing the reasons upon which the awards were made, which shall be forwarded to the Secretary within thirty days from the close of the Fair.

DISCRETIONARY PREMIUMS.

No Awarding Committee shall award any discretionary premiums. Whenever articles of superior merit are exhibited, for which no premiums have been offered, the Awarding Committee may enter the same on the book of awards, so that the Secretary may report the same to the Board for further action.

Awarding Committees must not attach premium cards to articles for which no premiums are offered. Awarding Committees may attach *commended* cards to such articles as in their judgment deserve commendation, and make an entry of the same in the book.

PAYMENT OF PREMIUMS.

Premiums are payable in cash, if desired, except when medals or diplomas are specified. The diplomas and medals will be delivered at the State Agricultural Rooms, in the State House, in Columbus, as soon as they can be prepared or engraved, or will be forwarded, as directed, to the proper persons by the Secretary. Premiums will be paid by the Teasurer only on the order of the President and Secretary, and will be delivered, on application, after *ten* days after the Fair. These orders must be endorsed by the party to whom they are made payable.

All premiums awarded must be claimed prior to the first of January, 1881, or they will be deemed forfeited.

In any case, a premium having been awarded on any single animal or article of $10 or upwards, it shall be optional with the exhibiter to receive either *silver plate or medal,* suitably engraved, or the money.

STATEMENTS TO BE FURNISHED BY APPLICANTS FOR PREMIUMS ON FARM CROPS.

I. The land shall be measured by some competent person, who shall make affidavit of the accuracy of the measurement and the quantity of ground.

II. The applicant shall make affidavit, according to the forms annexed, to the quantity of grain raised on the ground entered on the premium list, which affidavit must accompany the application for premiums, together with a sample of the grian.

The main object of the Society being to promote profitable cultivation, it does not propose to offer premiums for crops produced by extravagant expenditure; therefore, a detailed, certified account of the expenses of cultivation must be made. The expense of labor and manure should be particularly stated, and the kind of manure used. The statement must be in the following form:

To —— loads manure, at $—— per load, $——
To —— days' plowing, at $—— per day, $——
To —— days' labor, at $—— per day, $——
To —— days' harvesting, at —— per day, $——
To —— marketing............................$——

And thus each item of expense incurred in the cultivation and marketing of the various crops upon which premiums are applied for, must be fully stated.

The kind and condition of the soil, the quality and kind of seed used, the time and mode of putting it in the ground, should be particularly stated.

Samples of grain and vegetables produced to be exhibited at the State Fair, where practicable, and also to be sent to the rooms of the Board at the January meeting.

III. All the grain grown on the entire piece of land measured, must be either all weighed or measured, *and not the product of a square rod or two weighed and the remainder guessed at.*

FORM OF AFFIDAVITS.

——County, ss. A. B. being duly sworn, says he has accurately measured the land upon which C. D. raised a crop of—— the past season, and the quantity of land is —— acres, and no more.

Sworn to before me, this —— day of ——, 1880. —— ——, *Justice.*

——County, ss. C. D. being duly sworn, says that he raised a crop of —— the past season upon the land measured by A. B., and the quantity raised thereon was —— bushels, and no more, weighed (or measured in a sealed half bushel, as the case may be), and that the statements in regard to the manner of cultivation, etc., are correct to the best of his knowledge.

Sworn to before me, this —— day of ——, 1880. —— ——, *Justice.*

FLAGS IN THE HORSE RING.

During the exhibition of horses in the ring, each class will be indicated by a flag, run up on the judges' stand, as follows:

Red flag indicates Thoroughbreds, Book 1.
White flag indicates Roadsters, Book 2.
Green flag indicates General Purpose, Book 3.
Blue flag indicates Draft, Book 4.
Yellow flag indicates Matches, Book 7.
Red and White flag indicates Trotters.
National flag indicates Runners.

National flag with any other flag, calls for Sweepstakes of the Class represented by such other flag; thus, a National flag and a Blue flag calls for Draft Sweepstakes.

All Horses in the Class, from the aged Stallion down to, and including Colts, must be brought into the ring when the flag goes up. When they have been exhibited, Mares down to Sucklings must be brought in.

PREMIUMS.

Premiums Offered at Ohio State Fair, 1880.

	Amount of cash.	Number of medals.	Number of diplomas.
Horses.			
Thoroughbreds	$286 00	....	....
Roadsters	276 00	....	....
General purpose	276 00	....	....
Draft	298 00	....	....
Geldings and mares for light harness	53 00	....	....
Saddle horses	30 00	....	....
Matched horses and mares	135 00	....	....
Sweepstakes for thoroughbreds and roadsters	140 00	....	....
Draft sweepstakes	140 00	....	....
Jacks and mules	85 00	....	....
Speed classes	2,470 00	....	....
Total	$4,189 00		
Cattle.			
Shorthorns	$488 00	....	....
Devons	187 00	....	....
Herefords	136 00	....	....
Jerseys, Guernseys and Alderneys	138 00	....	....
Ayrshires	136 00	....	....
Hollanders or Holsteins	84 00	....	....
Angus and Galloways	46 00	....	....
Dairy stock	135 00	....	....
Work oxen and steers	63 00	....	....
Fat cattle	220 00	....	....
Sweepstakes on cattle	560 00	1	....
Totals	$2,193 00	1	
Sheep.			
Merinos	$380 00	....	....
Long wools	133 00	....	....
Leicesters	133 00	....	....
Downs and fat sheep	155 00	....	....
Sweepstakes on sheep	150 00	....	....
Total	$951 00		

PREMIUMS OFFERED AT OHIO STATE FAIR, 1880—Continued.

	Amount of cash.	Number of medals.	Number of diplomas.
Swine.			
Berkshires	$235 00		
Poland Chinas	240 00		
Chester Whites	125 00		
Essex	100 00		
Suffolks	40 00		
Sweepstakes on swine	65 00	4	
Totals	$805 00	4	
Poultry.			
Poultry	$313 00		
Machinery, Agricultural Implements, etc.			
Machinery, engines etc	$189 00	2	5
Shop machinery	177 00	2	1
Hay and harvesting machines and tools	66 00		8
Agricultural machines (First Division)	92 00	3	2
" (Second Division)	114 00	4	4
Drills, cultivators, etc	39 00	4	9
Plows	108 00	4	6
Totals	$785 00	19	35
Mechanics' and Manufacturers' Products.			
Worked metals	$161 00	2	
Stoves, castings, etc	44 00	4	5
Vehicles	160 00		1
Household implements, etc	124 00		1
Glass, crockery, etc	46 00	1	
Minerals and chemicals	96 00	2	
Totals	$431 00	9	7
Textile Fabrics and Domestic Manufactures.			
Household fabrics	$87 00		
Needle work	110 00		1
Braiding and embroidery	100 00		
Crochet and other ornamental work	112 00		
Cabinet ware	220 00	1	1
Factory goods	133 00		
Stationers' ware	48 00		
Merchants' and dealers' class	108 00		
Boots, shoes, etc	29 00		
Leather manufactures	50 00		
Totals	$997 00	1	2

PREMIUMS OFFERED AT OHIO STATE FAIR, 1880—Continued.

	Amount of cash.	Number of medals.	Number of diplomas.
Farm Products, Experiments, etc.			
Essays	$50 00		
Farms	25 00		
Crop experiments	100 00		
County reports		1	
Field crops	150 00		
Wheat	1,000 00		
Flour, grain and seeds	171 00	2	
Corn	67 00		
Cheese	52 00	4	
Butter, bread, etc	95 00	1	
Pickles, preserves, etc	115 00		
Root crops	101 00		
Vegetables	130 00		
Bees, honey and apiarian supplies	31 00		
Totals	$2,087 00	8	
Fruits.			
Summer and fall apples	43 00		
Winter apples	79 00		
Plate apples	68 00		
Peaches, quinces and plums	56 00		
Pears	114 00		
County fruits	65 00		
Grapes	99 00		
Native wines	25 00	1	
Totals	$449 00	1	
Flowers and Fine Arts.			
Plants and flowers (professional list)	$395 00		
" (amateur list)	216 00		
Drawings, paintings, etc	265 00	5	13
Sculpture, etc	10 00	3	
Philosophical, etc., instruments		1	26
Musical instruments	75 00	3	1
Totals	$961 00	12	40
Summary.			
Horses	$4,189 00		
Cattle	2,193 00		
Sheep	951 00		
Swine	805 00	4	
Poultry	313 00		
Machinery and agricultural implements	785 00	19	35

PREMIUMS OFFERED AT OHIO STATE FAIR, 1880—Continued.

	Amount of cash.	Number of medals.	Number of diplomas.
Summary—Continued.			
Mechanics' and manufacturers' products	$431 00	9	7
Textile fabrics and domestic manufactures	997 00	1	2
Farm products, experiments, etc	2,087 00	8	....
Fruits	449 00	1	....
Flowers and fine arts	961 00	12	40
Totals	$14,161 00	54	84

ENTRIES, AWARDS, AND COMMITTEE REPORTS.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
HORSES—THOROUGHBREDS.			
Stallions 4 years and over.			
Isaac Antram, Harveysburg, Ohio	Starlight		
John Reber, Lancaster, O	Kyrle Daly	1st	$40
Noyes and Irvine, Marion, O	Worcester	2d	20
Stallions 3 years and under 4.			
E. O. Mitchell, Croton, O	Harry Waxford	2d	10
John Disinger, Amanda, O	Pilgrim	1st	20
Mares 4 years and over.			
J. P. Bidleman, Columbus, O	Bonnie Ford	1st	30
John Reber, Lancaster, O	Bonnie Kate	2d	15
H. G. Miller, Newark, O	Mollie		
Noyes and Irvine, Marion, O	Belle of Nelson		
J. H. Hayes, Washington C. H	Mollie		
Mares 3 years and under 4.			
A. H. Darling, Bladensburg, O	Mollie Cad		
J. P. Bidleman, Columbus, O	Louisa Gwynne	1st	20
M. Thomas, Xenia, O	Mollie Thomas	2d	10
Brood mare with foal by her side.			
John Reber, Lancaster, O	Emily Peyton	1st	30
ROADSTERS.			
Stallions 4 years and over.			
J. E. Patterson, Columbus, O	Mohawk Prince		
W. W. Richardson, Everett, O	Sunshine		
Wm Sumock, Massillon, O	Buckeye Chief		
B. W. Stevenson, Clyde, O	Fleetfoot Hunter		
Henry Ropp, Springfield, O	Pilot	3d	10
John Reber, Lancaster, O	Abdalbrino	1st	40
J. O. Smith, Harrisburg, O	Mohawk Franklin		
T. W. McCue, North Lawrence, O	Lochinvar		
A. G. Pratt, South Charleston, O	Young Mohawk	2d	20
W. C. Williamson, London, O	Paragon		
John H. Fishell, Minerva, O	Nigger Doctor		
Stallions 3 years and under 4.			
Hall & Bemiss, Belleville, O	Sam Nuns		
C. H. Harlow, Hudson, O	Cashier	2d	10
J. B. Stewart, Flint, O	General Stewart		
W. C. Williamson, London, O	Perfection		
John Turner, Pleasant Corners, O	Ned	1st	20

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Stallions 2 years and under 3.			
J. F. Miller, Richmond, Ind	Richmond	1st	$15
Mares 4 years and over.			
Theo. Comstock, Columbus, O	Frolick		
John Stitt, Zanesville, O	Nellie Stitt	1st	30
John Reber, Lancaster, O	Lady Richmond		
H. M. Bugher, Glendale, O	Mary Belmont	2d	15
Wm. Scott, Darbyville, O	Lady Hughes		
V. Lapham, Marion, O	Flora		
T. W. McCue, North Lawrence, O	Abby Darlucy		
Dr. A. Barrow, Newark, O	Mary Munson		
D. H. Walcutt, Poplar, O	Lucy		
T. Massey, Chillicothe, O	Rumps		
D. O. Heiskell, South Charleston, O	Quaker Girl		
N. W. Perrill, Groveport, O	Daisy Perrill	3d	10
A. D. Burnside, Alexander, O	Lizzie B		
Mares 3 years and under 4.			
Albert Joseph, Pataskala, O	Pilot Maid	2d	10
Will German, Shadesville, O	Nellie	1st	20
Brood mare with foal by her side.			
Elam May, Alum Creek, Delaware Co., O	Nellie May	1st	30
GENERAL PURPOSE.			
Stallions 4 years and over.			
Wm. Patterson, Hilliard, O			
Jas. McKinstry, Bucyrus, O	Canadian Blackhawk		
Cal. Bates, Falmouth, Ind	Superior		
David Fisher, Godrich, Ont., Can	Pride of the Dominion		
Chas. A. Krider, Massillon, O	Harry		
Hall & Bemiss, Belleville, O	Hotspur, Jr		
A. D. Burnside, Pataskala, O	Butler Boy		
S. J. Truesdell, Chesterville, O	Abdallah, Jr		
C. H. Harlow, Hudson, O	Chestnut Dick	3d	10
C. A. Redding, Westerville, O	Hiatoga Jim		
W. T. Fitzgerald, Big Plain, O	Chaw		
Geo. Stevens, Plain City, O	Col. Moore	2d	20
John Decker, Groveport O	Frank Saylor		
D. P. Larkin, Selma, O	Telegraph, Jr	1st	40
Stallions 3 years and under 4.			
J. V. Davis, Galloway, O	Teaser		
Stephen Lipps, Canal Winchester, O	Bay Sam		
J. O. Smith, Harrisburg, O	Brown Lion	2d	10
D. H. Walcutt, Poplar, O	Rattler Boy	1st	20

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Stallions 2 years and under 3.			
John Slagel, West Jefferson, O		2d	$8
J. Dresback, Circleville, O	Robbinhood	1st	15
J. T. Sager, Hilliard			
John Clickenger, Columbus			
Mares 4 years and over.			
C. G. Brown, Circleville, O	Mohawk	3d	10
Henry Johnson, Lancaster, O	Ancient Order Girl		
T. B. Vause, Camp Chase, O	Kit	1st	30
Thos. Sweet, Hamilton, O	Polley	2d	15
Mares 3 years and under 4.			
Robt. Thompson, Dublin, O	Lucy		
Chas. Baker, Lancaster, O	Eureka		
Z. Penn, Dublin, O	Sallie	2d	10
"	Minnie	1st	20
Brood mare with foal by her side.			
Jas. Plynivel, Sabina, O	Daisy	2d	15
J. B. Stewart, Flint, O		1st	30
DRAFT HORSES.			
Stallions 4 years and over.			
Cal. Bates, Falmouth, Ind	France	2d	20
David Fisher, Godrich, Ont., Can	French Lion	3d	10
Titus & Walters, Marion, O	Marqius		
Sellers & Hoff, Cardington, O	Forfar Chief		
Smith Bros., Mt. Gilead, O	Sterlingshire Champion	1st	40
Columbus Delano, Mt. Vernon, O	Hannibal		
Stallions 3 years and under 4.			
Robt. Patterson, Hilliard, O		2d	10
John Loyd, Hilliard, O	Young Hepburn	1st	20
J. T. Handley, Reynoldsburg, O	Duke	3d	5
Stallions 2 years and under 3.			
Cal. Bates, Falmouth, Ind	Jake	1st	15
David Fisher, Godrich, Ont., Can	King of Dublin	2d	8
Robt. Price, Bloomfield, O	Scotland		
Stallions 1 year and under 2.			
Richar & Jerman, Hilliard, O		2d	5
Cal. Bates, Falmouth, Ind	Diamond	1st	10

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Mares 4 years and over.			
Cal. Bates, Falmouth, Ind	Blanche	3d	$5
"	Josephine	1st	25
C. G. Brown, Circleville, O	Bessie Turner		
Smith Bros., Mt. Gilead, O	Fannie		
"	Bess		
Columbus Delano, Mt. Vernon, O	Topsy		
Geo. Lawrence, Marion, O	Clyde	2d	12
"	Vie		
Mares 3 years and under 4.			
Cal. Bates, Falmouth, Ind	Belle	1st	20
Isaac T. Beum, Sunbury, O	Queen	2d	10
Mares 2 years and under 3.			
Cal. Bates, Falmouth, Ind	Maud	1st	15
Robt. Price, Bloomfield, O	Beck	2d	8
Filly 1 year and under 2.			
Thos. Jerman, Hilliard, O		1st	10
Brood mare with foal by her side.			
R. K. Peese, Hilliard, O		1st	30
J. L. Bowman, Canal Winchester, O		2d	15
GELDINGS AND MARES FOR LIGHT HARNESS.			
Mare or gelding 4 years and over.			
David Nims, Bellevue, O	Little Ned		
Frank Hagans, Shadeville, O	Frank Patchen		
J. B. Stewart, Flint, O	Pretty Boy		
"	Grey Billy		
A. H. Darling, Bladensburg, O	Ben Johnson		
Wm. Sumock, Massillon, O	Billy S.		
John Emery, Zanesville, O	Billy		
Andrew Davidson, Lancaster, O	Roan Charley		
H. M. Bugher, Glendale, O	Fleetwood Messenger		
R. D. Dean, Columbus, O	George		
T. W. McCue, North Lawrence, O	May		
" "	Handy Triming		
R. E. Wing, Newark, O	Gritty W.		
D. H. Walcutt, Poplar, O	Jennie		
D. O. Heiskell, South Charleston, O	Minnie Warren		
Jas. Alexander, Columbus, O	Nicodemus	1st	20
D. P. Larkin, Selma, O	Baby Boy		
Caskey & Albaugh, Circleville, O	Thorn	2d	10
P. W. Brown, Circleville, O	Jim Gardner		
J. T. Hulse, Circleville, O	Dick Sliter		
Geo. Carr, Columbus, O	Ennis		

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Mare or Gelding 3 years and under 4.			
David Nims, Bellevue, O		2d	$8
H. Dissinger, Amanda, O		1st	15
SADDLE HORSES.			
Horse, mare or gelding for saddle.			
Frank Tallmadge, Columbus, O			
John Emery, Zanesville, O	Charley		
Thos. Sweet, Hamilton, O	Bay Jim	1st	20
N. W. Perrill, Groveport, O		2d	10
Geo. Carr, Columbus, O	Rover		
MATCHED HORSES AND MARES.			
Pair of coach geldings or mares.			
Stephen Carey, Hilliard, O		2d	15
Smith Bros., Mt. Gilead, O			
Thos. Sweet, Hamilton, O		1st	30
Pair farm or draft geldings or mares.			
Cal. Bates, Falmouth, Ind		1st	30
Richard Jones, Hilliard, O		2d	15
Pair light harness geldings or mares.			
David Nims, Bellevue, O		2d	15
Wm. Scott, Darbyville, O	Minnie and Josie	1st	30
D. H. Walcutt, Poplar, O	Jennie and Lucy		
John Emery, Zanesville, O	Bill and Charley		
W. H. Albaugh, Circleville, O	Harry and Billy		
SWEEPSTAKES FOR THOROUGHBREDS AND ROADSTERS.			
Thoroughbred or roadster stallion, with five of his colts.			
Hall & Bemiss, Bellevue, O	Holtspur, Jr		
Wm. Simrock, Massillon, O	Buckeye Chief	1st	50
Stallion any age or breed, other than draft.			
C. H. Harlow, Hudson, O	Cashier		
B. W. Stevenson, Clyde, O	Fleetfoot Hunter		
John Reber, Lancaster, O	Kyrle Daly	1st	50
T. W. McCue, North Lawrence, O	Lochinvar		

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Mare any age or breed, other than draft.			
John Reber, Lancaster, O	Bonnie Kate	1st	$40
T. W. McCue, North Lawrence, O	Abby Darling		
Thos. Sweet, Hamilton, O	Polly		
DRAFT SWEEPSTAKES.			
Draft stallion, with five of his colts.			
Cal. Bates, Falmouth, Ind	France	1st	50
Draft stallion any age.			
mith Bros., Mt. Gilead, O	Starlight Champion	1st	50
Cal. Bates, Falmouth, Ind	France		
Sellars & Hoff, Cardington, O	Forfar Chief		
Draft mare any age.			
Smith Bros., Mt. Gilead, O	Fannie		
Columbus Delano, Mt. Vernon, O	Topsy		
Geo. Lawrence, Marion, O	Clyde		
" "	Vie		
Cal. Bates, Falmouth, Ind	Josephine	1st	40

CATTLE—PEDIGREES, ENTRIES, AND AWARDS.

SHORTHORNS.

Owner.	Post-office.	Name and number of animal.
		Bulls 3 years and over.
Jones & Hills	Delaware, Ohio	Duke Dunmore, 32,248
J. C. Stevens	Kenton, “	Bell Duke, 22,107
Calvin, Dodge & Son	New Lyme, “	Royal Briton, 15,393
Wing & Thompson	Bement, Illinois	Prince Geneva's Son
R. Hawley	Detroit, Michigan	Beaconsfield, (362)
Thomas W. Herron	Freeland, Ohio	Muscatoon, Jr
J. R. Anderson	Anderson, “	Springdale Airdrie 2d
D. D. Richards	Newark, “	Waterloo
G. J. Hagerty & Sons	Hanover, “	Baron, 28,499
F. P. Modlin & Bro	New Castle, Indiana	Prince Louan
George W. Gregg	Circleville, Ohio	Mazurka Judge, 33,256
George M. Bedford	Paris, Kentucky	36½ Duke of Goodness
David Selsor	London, Ohio	Loudon Duke of Greenwood, 34,261
		Bulls 2 years and under 3.
C. Hills	Delaware, Ohio	3d Grand Baron
Calvin, Dodge & Son	South New Lyme, Ohio	Prince Royal, 36,625
Copper & McFarland	Mt. Vernon, “	Earl Duncan, 7,539
John S. Steele	Anderson Station, “	Prize Boy
David Selsor	London, “	Duke Clifton 3d
		Bulls 1 year and under 2.
C. Hills	Delaware, Ohio	4th Grand Red Rose
same	“ “	2d Lord Red Rose
Calvin, Dodge & Son	South New Lyme, Ohio	Gwyne's Duke, 35,721
Wing & Thompson	Bement, Illinois	4th Earl of Piatt
R. C. Moulton	Woodstock, Ohio	Veto
D. D. Richards	Newark, “	3d Duke of Newark
G. J. Hagerty & Sons	Hanover, “	Imperial
Anderson & Price	Anderson Station, Ohio	Young Airdrie
George W. Gregg	Circleville, “	Governor Foster
same	“ “	Captain Oglevee, (573)
George M. Bedford	Paris, Kentucky	11th Duke of Sharon
same	“ “	58th Duke of Goodness
		Bull Calves.
C. Hills	Delaware, Ohio	Lord Baron
same	“ “	3d Lord Red Rose
same	“ “	4th Lord Red Rose
Calvin, Dodge & Son	South New Lyme, Ohio	General James
same	“ “	Count of Lebanon
J. R. Anderson	Anderson Station, “	
G. J. Hagerty & Sons	Hanover, “	Emperor
same	“ “	Red Knight 3d
John S. Steele	Anderson Station, “	
Anderson DeWitt	Washington C. H., “	Red Bird
George W. Gregg	Circleville, “	Dick Morgan
George M. Bedford	Paris, Kentucky	64th Dude of Goodness
David Selsor	London, Ohio	Bell Duke
same	“ “	2d Loudon Duke of Greenwood
George W. Gregg	Circleville, “	
		Cows 4 years and over.
C. Hills	Delaware, Ohio	Crystal Queen 6th
same	“ “	Crystal Queen 8th
same	“ “	Crystal Queen 9th
same	“ “	2d Lady Matilda
J. C. Stevens	Kenton, “	2d Duchess of Loamland
Wing & Thompson	Bement, Illinois	Lady Julia Booth.
J. R. Anderson	Anderson Station, Ohio	Mayflower
same	“ “	Sharon Queen 2d
D. D. Richards	Newark, “	Model 5th
John S. Steele	Anderson Station, “	Nellie Sharon 2d
T. P. Modlin & Bro	New Castle, Indiana	Kitty Payne
George W. Gregg	Circleville, Ohio	11th Duchess of Loamland
George M. Bedford	Paris, Kentucky	10th Duchess Louan
David Selsor	London, Ohio	Profitable 9th
same	“ “	Greenwood Louan 30th

CATTLE—PEDIGREES, ENTRIES, AND AWARDS.

SHORTHORNS.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount.
4th Duke of Geneva, (30958)	Mayflower 5th	Airdrie, (30365)	Sec'nd	$25 00
14th Duke of Thorndale, (28459)	Maggie May	Royal Crown, 10,916		
Lord Landsdown, 29128	Fenessc	Rob Roy, 22740		
Prince Geneva 2d, 10668	Cambria Louan	Victor 12th, 7360		
3d Earl of Goodness, (3125)	Lottie	Lincoln, (1651)		
Muscatoon, (7057)	Hattie	Burnside, (4618)		
Washington Airdrie, 13110	Mate	Airdrie 2d, 11267	Third	10 00
18th Duke of Airdrie, 11,678	5th Lady Salc of Hanover	Geo. B. McClellan, 4810		
6th Baron Morley, 22039	Highland Maid 6th	Falconwood, 6732		
Mazurka D. of Airdrie, (37086)	Nannie Williams 5th	Duncan's Gen. Grant, (8056)		
2d Duke of Oneida	33d Duchess of Goodness	14th Duke of Thorndale		
Loudon Duke 7th, 10400	King's Loudon Duch's 3d	Loudon Duke 4th, 5906,	First	50 00
Grand Red Rose, 26746	Dolly Varden	Mazurka's D. of Airdrie, (37086)		
Royal Briton, 15393	Lady Jane 4th	Lord Derby, 4949	First	35 00
6th Earl of Lakeview, 14164	Bell Duncan 3d	Mazurka Duke of Airdrie		
Washington Airdrie, 13110	Mollie	Col. Barnes, 4653	Third	10 00
Duke Clifton 2d, 13,802	Greenwood Louan A.		Sec'nd	20 00
Duke Dunmore, 32248	Mazurka Rose	Mazurka D. of Airdrie, (37086)		
Duke Dunmore, 32248	Crystal Queen 9th	King Red Rose, 26971		
Duke of Oxford, 22880	Atlantic Gwynne 2d	Duke of Salem, 9943		
Prince Geneva's Son	Bonnie Belle 6th	Sweeptakes, 6230		
Springdale Airdrie, 37035	Matilda 9th	Washington Airdrie, 13110	First	25 00
13th Duke of Granville, 16801	Model 5th	Sir Guy, 9108		
Earl of Oxford, 8062	Pearlette	4th Duke of Airdrie, 7878		
Airdrie of Twin, 28475	1st Lady of Twin	Washington Airdrie, 12110		
Mazurka Judge, 33256	Lizzie Sharon	Airdrie 2d, 11267	Sec'nd	15 00
Mazurka Jndge, (332)	Foundling 4th	Plumwood F.,		
4th Duke of Geneva	Duchess 12th	Joe Johnson	Third	10 00
Imperial Bates	46th Duch's of Goodness	14th Duke of Thorndale		
Duke Dunmore, 32248	Dolly Varden	Mazurka's D. of Airdrie, (37086)		
“	Mazurka Rose	“ “ “		
“	Crystal Queen 7th	“ “ “		
Royal Briton, 15393	Lady Jane 13th	Five-Twenty, 8140		
Royal Briton, 15,393	Lady Mary 2d	Five-Twenty, 8140	Sec'nd	8 00
Springdale Airdrie 2d	Sharon Queen 2d	Washington Airdrie, 13110		
Earl of Oxford, 8072	Imp. Lady Seraphina 4th	Duke of Barrington, 21565		
Barron, 28499	Lady Sale of Hanover	Domino, 9765		
Springdale Airdrie	Matilda 9th	Washington Airdrie, 13110	Third	5 00
Goldfinder, 17197	Belle	Burnsides, 4618		
Dick Bryan, 19341	Sallie Belle 8th	Dexter, 7806		
36½ Duke of Goodness	40th Duchess of Goodness	14th Duke of Thorndale		
1st Duke of Greenwood, 26244	Greenwood Belle 1st	20th Duke of Airdrie, 13872	First	12 00
Loudon Duke of Greenwood	Profitable 9th	Dan'l Boone, 11604		
Mazurka's D. of Airdrie, (37065)	Crystal Queen	Buckeye Starlight, (36293)		
Duke of Crystal Spring, 19425	“	“ “		
King Red Rose, 26971	Crystal Queen 8th	Duke of Crystal Spring, 19425		
Agassiz, 18616.	Gypsey	Col. Barnes, 4653		
Bell Duke C, 11359	Lucky	Maris 2d, 4992		
Baron Booth of L, 7535	Lady Julia	Gray's Medalist		
Washington Airdrie, 13110	Mate	Airdrie 2d, 11267	First	45 00
Washington Airdrie, 13110	Fawn	Airdrie 2d, 11267		
Sir Guy, 9108	Model	Capt. Crusader, 3727		
Washington Airdrie, 13110	Farie	Rainbow, 12700	Third	10 00
Duke C, 11,359	Prairie Flower 3d	Maris 2d, 4992		
16th Duke of Goodness	2d Duchess Louan	14th Duke of Airdrie		
Dan'l Boone, 11604	Profitable 4th,		Sec'nd	25 00
Dan'l Boone, 11604	Greenwood Louan 17th	Sir Walter Scott, 9118		

CATTLE—Pedigrees, Entries, and Awards—Continued.

Shorthorns—Continued.

Owner.	Post-office.	Name and number of animal.
		Cows 3 years and under 4.
C. Hills	Delaware, Ohio	2d Aylesby Red Rose
J. C. Stevens	Kenton, “	4th Loudon Duchess
same	“ “	5th Loudon Duchess
D. D. Richards	Newark, “	Model Queen
Jno. S. Steele	Anderson Station, Ohio	Matilda 12th
Geo. W. Gregg	Circleville, Ohio	Placida 8th
Geo. M. Bedford	Paris, Ky	56th Duchess of Goodness
same	“ “	65th Duchess of Goodness
David Selsor	London, Ohio	Greenwood Louan 34th
same	“ “	Profitable 14th
		Cows 2 years and under 3.
J. C. Stevens	Kenton, Ohio	Loamland Beauty
Calvin Dodge & Son	S. New Lyme, Ohio	Countess of Lebanon
same	“ “ “	Lady Jane 22d
same	“ “ “	Lady Jane 24th
J. R. Anderson	Anderson Station, Ohio	Jennie May
D. D. Richards	Newark, Ohio	White Stocking
same	“ “	Louan Florence 5th
C. Hills	Delaware, “	4th Lady Matilda
F. P. Modlin & Bro	New Castle, Ind	Bright Eyes
Geo. W. Gregg	Circleville, Ohio	Lass Plainsview 5th
Geo. M. Bedford	Paris, Ky	68th Duchess of Goodness
same	“ “	73rd Duchess of Goodness
David Selsor	London, Ohio	Bride 14th
		Heifers 1 year and under 2.
C. Hills	Delaware, Ohio	9th Mazurka Rose
same	“ “	Fancy's Flora
Calvin Dodge & Son	S. New Lyme, Ohio	Lady Jane 26th
same	“ “ “	Lady Jane 27th
Wing & Thompson	Bement, Ill	Strawberry 19th
same	“ “	Tulip's Vellum
J. R. Anderson	Anderson Station, Ohio	Ella Syfert
G. J. Hagerty & Sons	Hanover, Ohio	18th Lady Sale of Hanover
same	“ “	19th “ “ “
same	“ “	20th “ “ “
same	“ “	21st “ “ “
Jno. S. Steele	Anderson Station, Ohio	Topsey
F. P. Modlin & Bro	New Castle, Ind	Red Bird
Geo. W. Gregg	Circleville, Ohio	Belle of Walnut 5th
same	“ “	Jessica (Modjeska)
same	“ “	Placida Bell
		Heifer Calves.
C. Hills	Delaware, Ohio	Crystal Queen 18th
same	“ “	6th Lady Matilda
same	“ “	4th Aylesby Red Rose
J. C. Stevens	Kenton, “	Boston Belle 10th
Calvin Dodge & Son	S. New Lyme, “	Lady Jane 28th
same	“ “ “	Lady Jane 29th
Wing & Thompson	Bement, Ill	Strawberry 24th
J. R. Anderson	Anderson Station, Ohio	
D. D. Richards	Newark, Ohio	Model Queen 1st
G. J. Hagerty & Sons	Hanover, “	Queen of Hanover
Jno. S. Steele	Anderson Station, Ohio	Gracie
Geo. W. Gregg	Circleville, Ohio	Mame Sharon
Geo. M. Bedford	Paris, Ky	85th Duchess of Goodness

CATTLE—Pedigrees, Entries, and Awards—Continued.

SHORTHORNS—Continued.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount
King Red Rose, 26971	Dolly Varden	Mazurka's D. of Airdrie, (37086)		
Quintin, 15245	Vic Loudon	Loudon Duke 3d, 10398		
Quintin, 15245	Maggie Young	$tarlight 3d, 9143		
3rd Duke of Granville, 13954	Model 5th	Sir Guy, 9108		
Washington Airdrie, 13110	Mollie	Col. Barnes 4653		
1st Count of Oneida, 13727	Placida 7th	Knight of St. George, (26544)		
4th Duke of Geneva	14th Duchess of Goodness	14th Duke of Thorndale		
14th Duke of Thorndale	17th Duchess of Goodness	Basil Duke	Sec'nd	$20 00
Prairie Starlight, 12618	Greenwood Louan 5th	1st Great Republic, 6822	First	40 00
5th Duke of Oneida, 19558	Profitable 6th	Duke of Madison, 6665	Third	10 00
Defender, 16619	3rd Duchess of Loamland	Bell Duke C., 11359		
Royal Briton, 15393	Lady Mary 2d	Five-Twenty, 8140		
Royal Briton, 15393	Lady Jane 18th	Royal Briton, 15393		
Five-Twenty, 8140	Lady Jane 8th	Five-Twenty, 8140		
Washington Airdrie, 13110	Mate	Airdrie 2d, 11267	First	$25 00
13th Duke of Granville, 16801	Model 5th	Sir Guy, 9108		
Forest Napier, 17109	Louan Florence 2d	Bourbon Champion, 5391		
Grand Red Rose, 26746	Lady Matilda	Airdrie 2d 11267		
Duke of Plainsville, 29342	Nannie Williams 5th	Duncan's Gen'l Grant, 8056	Sec'nd	$15 00
4th Duke of Geneva	19th Duchess of Goodness	14th Duke of Thorndale	Third	10 00
14th Duke of Thorndale	17th Duchess of Goodness	Basil Duke		
5th Duke of Oneida, 19558	Bride 12th	Ben Butler, 7571		
Duke Dunmore, 32248	2d Mazurka Rose	Mazurka' sD. of Airdrie, (37086)		
Plumwood H., 15151	Fancy 3rd	Prince of Bellevilie, 10673		
Valentine's Pride, 25.074	Julia Booth	Baron Booth of L., 7535		
Valentine's Pride, 25074	Tulip's Louan	Louan's Oakland, 12341		
Springdale Airdrie 2d	Maud 3rd	Washington Airdrie, 13110	Third	$8 00
Baron, 28499	Lady Sale of Hanover	Domino, 9765		
Baron, 28499	6th Lady Sale of Hanover	3d Duke of Sullivan, 14091		
Baron, 28499	7th Lady Sale of Hanover	Barrington, 18976		
Baron, 28499	9th Lady Sale of Hanover	6th Earl of Lakeview, 14164		
Queen's Dunmore	Nellie Sharon 2d	Washington Airdrie, 13110		
Mazurka Judge, 33256	Belle of Walnut 3d	1st Count of Oneida, 13727	First	$20 00
Mazurka Judge, 33256	Lizzie Sharon 2d	Washington Airdrie, 13110	Sec'nd	12 00
Mazurka Judge, 33256	Placida 8th	1st Count of Oneida, 13727		
Duke Dunmore, 32248	Crystal Queen 9th	King Red Rose, 26971		
Duke Dunmore, 32248	2d Lady Matilda	Agassiz, 18616		
King Mazurka	2d Aylesby Red Rose	King Red Rose, 26297		
Bell Duke, 22107	Boston Belle 8th	Maggie, 12353	Sec'nd	$8 00
Royal Briton, 15393	Lady Jane 19th	Royal Briton, 15393		
Royal Briton, 15393	Lady Jane 18th	Royal Briton, 15393		
Earl of Piatt, 21543	Julia Booth	Baron Booth of L., 7525		
Springdale Airdrie 2d	Mayflower	Washington Airdrie, 13110		
13th Duke of Granville, 16801	Model 5th	Sir Guy, 9108		
Earl of Oxford, 8072	May Queen of Moundale	14th Duke of Airdrie, 7879		
Springdale Airdrie 2d, (243)	Matilda 12th	Washington Airdrie, 13110	First	$10 00
Springdale Airdrie 2d, (243)	Nellie Sharon	Washington Airdrie, 13110	Third	5 00
4th Duke of Hilhurst	Twin Duch's of Goodness	14th Duke of Thorndale		

CATTLE.—Pedigrees, Entries, and Awards—Continued.

JERSEYS, GUERNSEYS, AND ALDERNEYS.

Owner.	Post-office.	Name and number of animal.
		Bulls 3 years and over.
Hoover & Co	Columbus, Ohio	Cash Boy, 2248
J. W. Davis	“	Marquis of Lorne
Ohio State University	“	Duke of Elmwood
David Taylor	Taylor's Station, Ohio	Butter Stamp Jr., 3961
J. J. Scarff & Sons	New Carlisle, “	Crown Prince 2d
C. Bordwell	Cambridge, “	Dudley
W. L. Gardner	Norwalk “	Tom McGreevy
		Bull 2 years and under 3.
N. Pinney & Co	Worthington, Ohio	Niantic
		Bulls 1 year and under 2.
David Taylor	Taylor's Station, Ohio	Variety Boy
W. V. Decker	Groveport, “	Starlight
C. Bordwell	Cambridge, “	Imperial 2d
W. L. Gardner	Norwalk, “	Algebar
same	“ “	Mercury of Maple Grove
		Bull calves.
Hoover & Co	Columbus Ohio	Kate's Imperial
same	“	Eastwood
J. W. Davis	“	Oakland Duke
Ohio State University	“	
Taylor & Hutson	Taylor's Station, Ohio	My Stamp
same	“	Beauty's Boy
same	“	Walnut Valley Duke
C. Bordwell	Cambridge, Ohio	Castle Bar
W. L. Gardner	Norwalk “	
		Cows 3 years and over.
Hoover & Co	Columbus, Ohio	Imp. Ocean Queen. 1405
same	“	Imp. Queen of the Farm, 4684
same	“	Imp. Amy of Ipswick, 5583
same	“	Imp. Pride of Eastwood, 10277
N. Pinney & Co	Worthington, Ohio	Quaker Girl. 4551
same	“	Lady Worthington, 3801
Ohio State University	Columbus, Ohio	Melvina of Stadtberg
same	“	Virgel Lisle
same	“	Rose of Page
Taylor & Hutson	Taylors' Station, Ohio	Miami Prize, 8100
same	“	Miami Duchess, 8101
same	“	Countess Hebe, 8102
W. V. Decker	Groveport, Ohio	Daisy D
C. Bordwell	Cambridge “	Warren's Duchess
same	“	Duchess of Dadley, 8610
		Cows 2 years and under 3.
Hoover & Co	Columbus, Ohio	Zeniobe, 8932
same	“	Queen of Scotts 2d, 8729
N. Pinney & Co	Worthington, Ohio	Lady Bishop
same	“	Lady Bacon
same	“	Lady Fanning
same	“	Lady Picture
same	“	Countess 3d
J. W. Davis	Columbus, Ohio	Jersey Belle
Ohio State University	“	Lady Lisle
same	“	Ophelia of Oakland
Taylor & Hutson	Taylor's Station, Ohio	Miami Princess, 8105
W. V. Decker	Groveport, “	Golddust
C. Bordwell	Cambridge, “	Belle
W. L. Gardner	Norwalk, “	Lady Beaconsfield
same	“ “	Le Broeg's Lily of the Valley
same	“ “	Blue Belle

CATTLE—Pedigrees, Entries, and Awards—Continued.

JERSEYS, GUERNSEYS AND ALDERNEYS.

Name and number of sire.	Name of dam.	Name and No. of dam's sire.	Premium.	Amount.
Rex, 1330	Dido of Middlesfi'd, 3416	Colt, Jr, 825		
Butter Stamp, 700	Ford's Nellie, 3359			
Crown Prince, 330	La Belle, 3145		Sec'nd	$10 00
			First	20 00
			First	15 00
Black Prince, 1971	Protine			
Frank Mason	Coruicopia	Sam Weller (Imp)	First	8 00
Imperial, 505	Mary of Bear Lake, 6171	Prince of Warren, 1512		
			Sec'nd	4 00
Star of Empire, 2309	Rose Kate, 10276	Parrot 2d, 1669		
Cash Boy, 2248	Zeniobe, 8932	Imp. Louis, 450		
Butter Stamp, Jr., 3961	Miami Prize, 8100	Gold Prince, 2181	First	6 00
Hoover	Miami Beauty, 8099	"	Sec'nd	4 00
Butter Stamp, Jr., 3961	Miami Duchess, 8101	"		
Imperial, 505	Countess of Warren, 3886			
	Imp. Louisa, 1406			
			Sec'nd	10 00
Briton, 919	Imp. Maud of Ipswick, 1347			
Black Brince, 1971	Starlight Rose, 8804	Gold Prince, 2181		
Gold Prince, 2181	Acacia, 1162			
" "	Butter Prize, 8097	Gold Prince, 2181		
Antelope, 190	Hebe 6th, 2833			
Stanton	Lovely	Kentuck, 628		
			Fits	18 00
Imperlal, 505	Warren's Duchess, 4622	Optimus		
Imp. Louis, 450	Sylvia, 527	Junius, 204		
Smuggler, 451	Queen of Scott, 3683	Count Bismark, 732		
			Sec'nd	
				5 00
Black Prince, 1971	Butter Prize, 8077	Gold Prize, 2181		
Stanton	Lovely	Kentuck, 628		
Imperial, 505,	Ide of Bear Lake, 6169	Black Imperial, 255		
			First	10 00

CATTLE—Pedigrees, Entries, and Awards—Continued.

JERSEYS, GUERNSEYS, AND ALDERNEYS—Continued.

Owner.	Post-office.	Name and number of animal.
		Heifers 1 year and under 2.
Hoover & Co	Columbus, Ohio	Imp. Phillis
same	“ “	Jennie Andrews
Taylor & Hutson	Taylor's Station, Ohio	Double Princess
C. Bordwell	Cambridge, “	Princess Imperial
W. L. Gardner	Norwalk, “	Essie of Maple Grove
same	“ “	Belle of Vermillion
		Heifer Calves.
Hoover & Co	Columbus, Ohio	Imp. Glory of Eastwood, 10357
same	“ “	Belle of Eastwood, 10358
same	“ “	Queen of Eastwood
same	“ “	Lily Regia, 10361
N. Pinney & Co	Worthington, Ohio	Quaker's Lass
same	“ “	Lady of Maplewood
J. W. Davis	Columbus, “	Princess
same	“ “	Heartsease
Ohio State University	“ “	
same	“ “	
Taylor & Hutson	Taylor's Station, “	Walnut Valley Hebe
C. Bordwell	Cambridge, “	Imperial Omega
W. L. Gardner	Norwalk, “	
same	“ “	

DEVONS.

		Bulls 3 years and over.
E. C. Bliss	Westfield, N. Y	Buckeye 2d, 768
Jno. Blake	Whipple, Washington Co., O	Dan Baker, 812
Dan'l Torn	Rix Mills, Muskingum Co., O	Joe
D. J. Whitmore	Casstown, Ohio	Barefoot
		Bulls 2 years and under 3.
E. C. Bliss	Westfield, N. Y	Hamlet, 1229
Jno. Blake	Whipple, Ohio	Breastworks
J. J. Scarff & Son	New Carlisle, Ohio	King George
J. T. McPherson	Cambridge, “	Buckeye
		Bulls 1 year and under 2.
Jno. Blake	Whipple, Ohio	Frank
D. J. Whitmore	Casstown, “	Elgin 2d
		Bull Calves.
E. C. Bliss	Westfield, N. Y	Tip
same	“ “	Brick
Jno. Blake	Whipple, Ohio	Dock
Dan'l Torn	Rix Mills, “	Plowboy
J. J. Scarff & Son	New Carlisle, Ohio	Garfield
J. T. McPherson	Cambridge, “	Oxford
same	“ “	Guernsey
D. J. Whitmore	Casstown, “	Leroy
same	“ “	Royal
		Cows 3 years and over.
E. C. Bliss	Westfield, N. Y	Jennie, 1771
same	“ “	Beauty
Jno. Blake	Whipple, Ohio	Mollie Stark
Dan'l Torn	Rix Mills, “	Belle
J. J. Scarff & Son	New Carlisle, Ohio	Laura 2d
same	“ “	Maggie
J. T. McPherson	Cambridge, “	Favey, 1637
same	“ “	Cherry
same	“ “	Rosa
D. J. Whitmore	Casstown, “	Kitty Clover, 1070
same	“ “	Rosa
J. J. Scarff & Son	New Carlisle, “	Jessie

CATTLE—Pedigrees, Entries, and Awards—Continued.

JERSEYS, GUERNSEYS, AND ALDERNEYS—Continued.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount.
Pierrot 7th, 1667	Rosa Kate, 10276	Pierrot 2d, 1669	First...	$8 00
Black Prince, 1971	Miami Princess, 8105	Black Prince, 1971		
Imperial, 505	Warren's Duchess, 4622	Black Imperial, 255	Sec'nd	5 00
Farmer's Glory, 276	Imp. Buckeye Lass, 10355	Dick	Sec'nd	4 00
Visper's Royal Son, 2946	Miss Seelock, 6614	Duke of Lebanon, 1880		
Aventwuir, 4254	Imp. Ocean Queen, 1405			
Cash Boy, 2248	Pride of Eastwood, 10277	Black Prince, 1971		
Butter Stamp, Jr., 3961	Countess Hebe, 8102	Antelope 1927	First...	6 00
Imperial, 505	Dot of Bear Lake, 6120	Black Imperial, 255		

DEVONS.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount.
Buckeye, 767	Nora, 1962	Charley, 787		
Hudson, 556	Fanny, 959	Marylander, 278		
Frank, 855	Posey, 1982	Guelph Chief, 888	Sec'nd	10 00
Barrena, 425	Helena, 28	Omar Pasha, 1001	First...	20 00
Buckeye, 768	Jennie, 1771	Helena's Huron 9th, 545		
Hudson, 556	Belle Flora 4th, 807½	Barrenna, 425	First...	15 00
Bonner, 758	Belle 2d, 1400		Sec'nd	8 00
Dan Baker, 812	Cherry, 864	Marylander, 278		
Baron	Cherry 3d, 1482	Dan Baker, 812	First...	10 00
Elgin, 531	Dora, 1468	Genessee, 221	Sec'nd	5 00
Buckeye 2d, 768	Betsey, 1432	Charley, 787		
Buckeye 2d, 768	Satie, 2633	Buckeye, 2d, 768		
Dan Baker, 812	Maggie, 1881	Baltic		
Dexter (King George)	Ada 3d, 1040	Hudson, 556	Sec'nd	5 00
Grant, 534	Lila, 1840			
Frank, 858	Cherry, 1480	Guelph Chief, 888		
Buckeye	Fannie, 1637	Sampson 6th, 1058		
Barefoot, 732	Kitty Clover, 1070	Bounty, 15	First...	8 00
Elgin, 531	Princess of Kent, 1999	Batavia of Lapeer 2d		
Helena's Huron 9th, 545	Pauline 2d, 280	Baltimore 2d, 5		
Buckeye, 767	Jennie, 1771	Helena's Huron 9th, 545		
Baltic, 416	Cherry, 864	Marylander, 278		
Baltic, 416	Belle, 794	Jack 565		
Arrowhead, 409	Laura, 578		First...	20 00
Batavia, 159	Nellie, 1163		Third..	5 00
Sampson 6th, 1058	Beauty, 1362	Jackson, 926		
Guelph Chief, 888	Fancy, 1637	Sampson 6th, 1058		
“	“	“ “		
Bounty, 15	Pink, 1197	Bounty, 15	Sec'nd	10 00
Grant 2d, 534	Mina, 1172	Stout, 687		
Wah-bah-nis, 699	Beauty, 366			

CATTLE—Pedigrees, Entries, and Awards—Continued.

DEVONS—Continued.

Owner.	Post-office.	Name and number of animal.
		Cows 2 years and under 3.
E. C. Bliss	Westfield, N. Y	Satie, 2633
Jno. Blake	Whipple, Ohio	Lulu
Dan'l Torn	Rix Mills, “	Ada
same	“ “	Bettie
J. J. Scarff & Son	New Carlisle, Ohio	Effie
D. J. Whitmore	Casstown “	Effie
		Heifers 1 year and under 2.
E. C. Bliss	Westfield, N. Y	Viola, 2625
same	“ “	Jessica
Jno. Blake	Whipple, Ohio	Lady Miller
J. J. Scarff & Son	New Carlisle, Ohio	Nelly
J. T. McPherson	Cambridge, “	Maud
same	“ “	May
D. J. Whitmore	Casstown, “	Lilith
same	“ “	Gertrude
		Heifer Calves.
E. C. Bliss	Westfield, N. Y	Nettie
same	“ “	Synthia
Jno. Blake	Whipple, Ohio	Blanche
Dan'l Torn	Rix Mills, “	Red Girl
J. J. Scarff & Son	New Carlisle, Ohio	Betsey Baker 2d
J. T. McPherson	Cambridge, “	Lilley
D. J. Whitmore	Casstown, “	Missouri
same	“ “	Zilpha

HEREFORDS.

Owner.	Post-office.	Name and number of animal.
		Bull 3 years and over.
G. & F. Parsons & Wm. Miner	Wellington, Ohio	Lord Ragland
		Cows 3 years and over.
G. & F. Parsons & Co	Wellington, Ohio	Easter
same	“ “	Flora
		Cow 2 years and under 3.
G. & F. Parsons & Co	Wellington, Ohio	
		Heifer 1 year and under 2.
G. & F. Parsons & Co	Wellington, Ohio	
		Heifer Calves.
G. & F. Parsons & Co	Wellington, Ohio	
same	“ “	

AYRSHIRES.

Owner.	Post-office.	Name and number of animal.
		Bulls 3 years and over.
W. L. Mallow	New Holland, Ohio	Handsome Laddie, 2086
A. J. Wilson	Grafton, Ohio	Forester
		Bulls 1 year and under 2.
W. M. Mallow	New Holland, Ohio	Duke, 2274
A. J. Wilson	Grafton, “	Scotch Lad 3d
		Bull Calves.
A. J. Wilson	Grafton, Ohio	The Squire
same	“ “	Royal Oak

CATTLE—Pedigrees, Entries, and Awards—Continued.

DEVONS—Continued.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount.
Buckeye 2d, 768	Rosie, 2030	Helena's Huron 9th, 545		
Dan Baker, 812	Cherry 2d, 1481		Third..	$5 00
Dan Baker, 812	Gipsy 2d, 1100	Hudson, 556	First...	15 00
Bonner, 758	Belle 2d, 1400	Baltic, 416		
Grant, 584	Jessie, 1788		Sec'nd	8 00
Butler, 434	Kitty Clover, 1070	Bounty, 15		
Cole's Puritan 3d	Helena, 32d			
Cole's Puritan 3d	Lovely 18th			
Dan Baker, 812	Belle, 794	Jack, 565	First...	12 00
Grant, 584	Lottie, 1858		Sec'nd	8 00
Guelph Chief, 888	Jennie Lind, 7778	Sampson 6th, 1058	Third..	5 00
Prince	Fannie, 1637	" "		
Barefoot, 732	Kitty Clover, 1070	Bounty, 15		
"	Rose 3d, 2039	"		
Buckeye 2d, 768	Jennie, 1771	Helena's Huron 9th, 545		
Buckeye 2d, 768	Beauty, 1383	Buckeye, 767	Third..	4 00
Dan Baker, 812	Cherry, 865	Marylander, 278		
Bonner, 758	Belle 2d, 794	Jack, 565		
Grant, 584	Laura, 1825		First...	8 00
Buckeye	Rosa	Guelph Chief, 888		
Barefoot, 732	Winnie	Butler, 434	Sec'nd	6 00
Elgin, 531	Princess of Kent, 2741	Batavia of Lapeer		

HEREFORDS.

Sir Arthur, 4112	Fanny	Bristol Bill, 4374	First...	20 00
Sir Richard 2d, 4984	Agnes	Admiral, 2375	First...	20 00
Fair Boy 3d	Nora 2d	Captain, 2442	Sec'nd	10 00
			First...	10 00
			First...	8 00
			First...	5 00
			Sec'nd	3 00

AYRSHIRES.

Lord Lorn (Imp.)	Handsome, 3969 (Imp.)		Sec'nd	$10 00
			First...	20 00
Handsome Sadie, 2086	Lost Lassie	Glengana, 583 (Imp.)	First...	8 00
Scotch Lad, 1798	Hazel Dell, 3523	Imp. Seafield, 1708	Sec'nd	5 00
Lorain, 681	Imp. Miss Leiper, 4082		First...	5 00
Ohio Hero, 1875	Dairy M'd of Canada, 4682	Carluke, 1999	Sec'nd	3 00

CATTLE—Pedigrees, Entries, and Awards—Continued.

AYRSHIRES—Continued.

Owner.	Post-office.	Name and number of animal.
		Cows 3 years and over.
W. L. Mallow	New Holland, Ohio	Peytonia, 3865
A. J. Wilson	Grafton, "	Nonesuch
same	" "	Dairy Maid
		Cows 2 years and under 3.
A. J. Wilson	Grafton, Ohio	Dairy Maid of Canada
		Heifers 1 year and under 2.
W. L. Mallow	New Holland, Ohio	Pet
A. J. Wilson	Grafton, "	Lady Etheridge
same	" "	Kitty Muir 3d
		Heifer Calves.
W. L. Mallow	New Holland, Ohio	Lady Ayre
A. J. Wilson	Grafton, Ohio	Scotch Rose

HOLLANDERS AND HOLSTEINS.

		Bulls 2 years and over.
W. H. Smith	New Carlisle, Ohio	Country Gentleman
Arthur Underwood	Addison, Mich	Kortenaer
same	" "	3d Consul
same	" "	Schuyler
W. L. Gardner	Norwalk, Ohio	Burgomaster
		Bulls 1 year and under 2.
Arthur Underwood	Addison, Mich	Addison
same	" "	Arlington
W. L. Gardner	Norwalk, Ohio	Koning
		Bull Calves.
W. H. Smith	New Carlisle, Ohio	Holland Boy
Arthur Underwood	Addison, Mich	Prince Arthur
same	" "	Royal George
W. L. Gardner	Norwalk, Ohio	5th Lad of Texal
		Cows 3 years and over.
W. H. Smith	New Carlisle, Ohio	Cora
Arthur Underwood	Addison, Mich	Tina
same	" "	Linz
W. L. Gardner	Norwalk, Ohio	Lady Texal
same	" "	Spiard
same	" "	Zwaantzi
same	" "	Madam DeVries
		Cow or Heifer 2 years and under 3.
W. H. Smith	New Carlisle, Ohio	Portia
Arthur Underwood	Addison, Mich	Baltz.
W. L. Gardner	Norwalk, Ohio	Jetie
		Heifers 1 year and under 2.
W. L. Gardner	Norwalk, Ohio	Bugith Koning
same	" "	Zuidena
W. H. Smith	New Carlisle, Ohio	Daisy
Arthur Underwood	Addison, Mich	Caleb
		Heifer Calves.
W. H. Smith	New Carlisle, Ohio	Maud
W. L. Gardner	Norwalk, "	Spiard
same	" "	Riemkje

CATTLE—Pedigrees, Entries, and Awards—Continued.

AYRSHIRES—Continued.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount
Glengana, 583, (Imp.)	Psyche, 3112	Pink, 1722		
			First	$20 00
			Sec'nd	10 00
			First	$10 00
Handsome Laddie, 2086	Hebe's Daughter, 4521	Glengara, 583, (Imp.)		
Jas. E. Wilson, 1908	Wild Flower, 4088	Imp. Avondale Farmer, 422	[illegible]	[illegible] 00
Lorain, 681	Kitty Muir 2d, 3821	Prince Arthur, 1686	[illegible]	[illegible] 00
Handsome Laddie, 2086	Peytonia, 3865	Glengara, 583, (Imp.)	First	$5 00
Lorain, 681	Rosie 2d, 3767	Imp. Pride of the Hills, 1379	Sec'nd	3 00

HOLLANDERS AND HOLSTEINS.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount
Uncle Tom, 163	Fanny	Hamilcar, (Imp.)	Sec'nd	$8 00
			First	$12 00
			First	$8 00
Son of Schrender, (Imp.)				
			First	$5 00
Uncle Tom, 163	Gift	Hamilcar, (Imp.)		
			Sec'nd	$8 00
			First	$15 00
			Sec'nd	$5 00
			First	$10 00
			First	$8 00
Country Gentleman	Cora	Uncle Tom, 163		
Country Gentleman	Cora	Uncle Tom, 163		
			First	$5 00

CATTLE—Pedigrees, Entries, and Awards—Continued.

ANGUS AND GALLOWAYS.

Owner.	Post-office.	Name and number of animal.
		Breeding Cow or Heifer.
Anderson DeWitt	Washington C. H., Ohio	Margaretta 2d
		Heifer under 2 years.
Anderson DeWitt	Washington C. H., Ohio	Dorinda 2d

CATTLE SWEEPSTAKES—PREMIUM ANIMALS.

		Breeder's Herd.
Geo. M. Bedford	Paris, Ky	Bull, 36½ Duke of Goodness and four cows
J. R. Anderson	Anderson Station, Ohio	Springdale Airdrie 2d and five of his calves
Jno. S. Steele	“ “ “	Three cows with a calf each
Geo. W. Gregg	Circleville, Ohio	Six head young stock
		Exhibiter's Herd.
David Selsor	London, Ohio	Loudon Duke of Greenwood and four cows
David Selsor	“ “	Loudon Duke of Greenwood as any age or breed
Geo. M. Bedford	Paris, Ky	56th Duchess of Goodness as cow any age or breed
		Devons and Herefords.
J. J. Scarff & Son	New Carlisle	King George and four cows
		Ayrshire and Holstein.
A. J. Wilson	Grafton, Ohio	Forrester and four cows
W. H. Smith	New Carlisle, Ohio	Portia as cow with calf at foot
		Jerseys.
W. L. Gardner	Norwalk, Ohio	Tom McGreevy and four cows
Hoover & Co	Columbus, “	Cow with calf at foot

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* For pedigrees of Sweepstake animals see classes.

CATTLE—Pedigrees, Entries, and Awards—Continued.

ANGUS AND GALLOWAYS.

Name and number of sire.	Name of Dam.	Name and No. of dam's sire.	Premium	Amount
Modock	Imp. Margaretta 1st		First	$15 00
Bob Whitley	Dorinda	Shoo Fly	First	$8 00

CATTLE SWEEPSTAKES—PREMIUM ANIMALS.

			First	$100 & S. Cup.
			First	$50 00
			First	50 00
			First	50 00
			First	$100 00
			First	50 00
			First	50 00
			First	$30 00
			First	$30 00
			First	10 00
			First	$30 00
			First	10 00

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
DAIRY STOCK.			
Milking cow of any age.			
A. J. Wilson, Grafton, O.		1st	
Butter cow of any age.			
W. J. Rogers, Pittsfield, O.		1st	
WORK OXEN AND STEERS.			
Yoke of oxen 3 years and over.			
David Postle, Camp Chase, O.		1st	
W. F. Hoover, Ashville, O.		2d	
Yoke of oxen under 3 years.			
F. P. Cline, Ashville, O.		1st	
FAT CATTLE.			
Bullock 3 years and over.			
David Postle, Camp Chase, O.		3d	
" "			
Calvin, Dodge & Son, South New Lyme, O.		2d	
" " "			
" " "			
" " "		4th	
D. D. Richards, Newark, O.	Jerry Boy		
"	Tom Boy	1st	
Steer under 2 years.			
Wing & Thompson, Bement, Ill.	Gen. Trimble	2d	
B. Waddle, Marion, O.	Dave	3d	
D. D. Richards, Newark, O.	Buckeye Boy	1st	
Fat cow or heifer any class or breed.			
B. Waddle, Marion, O.	Lucy		
SHEEP—MERINOS.			
Ram 3 years and over.			
Copper & McFarland, Mt. Vernon, O.		3d	$10
Caton, Hill & DeWolf, Johnstown, O.		2d	15
R. Johnson, Utica, O			
E. J. Hiatt & Bros., Chester Hill, O	Ohio	1st	30
J. H. Clark, Kenton, O.			
E. J. Hiatt & Bros., Chester, O.	Black Diamond		

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Ram 2 years and under 3.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spivey, Fairview, Pa		1st	$25
R. Johnson, Utica, O			
E. J. Hiatt & Bros., Chester Hill, O	Gold Chief	3d	10
J. G. Blue, Cardington, O	Right Bower	2d	15
Ram 1 year and under 2.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spivey, Fairview, Pa		2d	15
A. M. Tyler & Bros., Alexandria, O			
Caton, Hill & DeWolf, Johnstown, O			
“ “			
S. P. Kimball, Woodstock, O			
R. Johnston, Utica, O			
“			
J. B McKiblear, Mt. Vernon, O			
E. J. Hiatt & Bros., Chester Hill, O	Partner		
“ “	Avalanch	1st	25
“ “	Mountain Guide	3d	10
Ram lamb.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spivey, Fairview, Pa			
Caton, Hill & DeWolf, Johnstown, O		2d	10
R. Johnston, Utica, O		1st	15
“		3d	5
Wm. DeRolph, Glenford, O			
E. J. Hiatt & Bros., Chester Hill, O			
“ “			
J. G. Blue, Cardington, O			
Pen of 3 ewes 3 years and over.			
R. Johnston, Utica, O		2d	15
E. J. Hiatt & Bros., Chester Hill, O		1st	30
Pen of 3 ewes 2 years and under 3.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spivey, Fairview, Pa			
S. P. Kimball, Woodstock, O			
“ “		1st	30
R. Johnston, Utica, O		3d	10
E. J. Hiatt & Bros., Chester Hill, O		2d	15
J. H. Clark, Kenton, O			
Pen of 3 ewes under 2 years.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spivey, Fairview, Pa		3d	8
Caton, Hill & DeWolf, Johnstown, O		2d	12
R. Johnston, Utica, O			
E. J. Hiatt & Bros., Chester Hill, O		1st	25
“ “			

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Pen of 3 ewe lambs.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spirey, Fairview, Va			
Caton, Hill & DeWolf, Johnstown, O			
S. P. Kimball, Woodstock, O			
R. Johnston, Utica, O		3d	$8
" "			
E. J. Hiatt & Bros., Chester Hill, O		1st	20
" "			
J. G. Blue, Cardington, O		2d	12
LONG WOOL TO INCLUDE LINCOLNS AND COTSWOLDS.			
Ram two years and over.			
J. J. Dodge & Sons, South New Lyme, O		1st	20
H. B. Hubbard, West Jefferson, O			
Abner Strawn, Ottawa, Ill		2d	10
Ram under 2 years.			
John J. Maxon, Gallipolis O			
J. J Dodge & Sons, South New Lyme, O			
" "		2d	10
H. E. Clark, Pittsfield, O			
" "			
Abner Strawn, Ottawa, Ill		1st	15
" "			
" "			
" "			
Ram lamb.			
John J. Maxon, Gallipolis, O			
J. J. Dodge & Sons, South New Lyme, O			
" "			
H. E. Clark, Pittsfield, O		2d	5
" "			
Abner Strawn, Ottawa, Ill			
" "			
John J. Maxon, Gallipolis, O			
J. J. Dodge & Son, South New Lyme, O			
H. E. Clark, Pittsfield, O			
Abner Strawn, Ottawa, Ill		1st	10
" "			
" "			
Pen of 3 ewes under years.			
John J. Maxon, Gallipolis, O			
J. J. Dodge & Sons, South New Lyme, O		3d	4
" "		1st	15

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Pen of 3 ewes under 2 years—Continued.			
H. E. Clark, Pittsfield, O			
Abner Strawn, Ottawa, Ill			
" "			
" "		2d	$8
Pen of 3 ewe lambs.			
J. J. Dodge & Sons, South New Lyme, O			
H. E. Clark, Pittsfield, O			
Abner Strawn, Ottawa, Ill		1st	8
" "		2d	4
LEICESTERS.			
Ram 2 years and over.			
D. W. Proctor, Dialton, O		1st	20
Ram under 2 years.			
S. Fairchild, Harlem, O		1st	15
Ram lamb.			
S. Fairchild, Harlem, O		2d	5
D. W. Proctor, Dialton, O		1st	10
Pen of 3 ewss over 2 years.			
D. W. Proctor, Dialton, O		1st	15
Pen of 3 ewes under 2 years.			
S. Fairchild, Harlem, O		2d	8
D. W. Proctor, Dialton, O		1st	12
Pen of 3 ewe lambs.			
S. Fairchild, Harlem, O		2d	4
D. W. Proctor, Dialton, O		1st	8
DOWNS, TO INCLUDE SOUTHDOWNS, OXFORD-DOWNS, HAMPSHIREDOWNS AND SHROPSHIREDOWNS—FAT SHEEP.			
Ram 2 years ond over.			
T. B. Bennington, Laporte, O		1st	20
G. J. Haggerty & Sons, Hanover, O	Ellere D, 113		
S. H. Todd, Wakeman, O		2d	8
Ram under 2 years.			
J. J. Dodge & Sons, South New Lyme, O			
" "		1st	15

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Ram under 2 years—Continued			
T B. Bennington, Laporte, O		2d	$8
“ “			
G. J. Haggerty & Sons, Hanover, O			
“ “			
Anderson & Price, Anderson, O			
S. H. Todd, Wakeman, O			
“ “			
Ram lamb.			
T. B. Bennington, Laporte, O		1st	10
G. J. Haggerty, Hanover, O			
Anderson & Price, Anderson, O			
S. H. Todd, Wakeman, O		2d	5
3 *ewes over* 2 *years.*			
T. B. Bennington, Laporte, O			
“ “		1st	15
G. J. Haggerty, Hanover, O			
“ “			
Anderson & Price, Anderson, O		2d	8
S. H. Todd, Wakeman, O			
3 *ewe lambs.*			
T. B. Bennington, Laporte, O		1st	10
G. J. Haggerty & Sons, Hanover, O			
Anderson & Price, Anderson, O			
S. H. Todd, Wakeman, O		2d	5
3 *fat wethers.*			
B. Waddle, Marion, O		2d	8
G. J. Haggerty & Sons, Hanover, O		1st	15
Single fat wether.			
B. Waddle, Marion, O		1st	5
S. Fairchild, Harlem, O			
3 *ewes under* 2 *years.*			
J. J. Dodge & Sons, South New Lyme, O			
T. B. Bennington, Laporte, O		1st	15
G. J. Haggerty & Sons, Hanover, O			
Anderson & Price, Anderson, O			
S. H Todd, Wakeman, O		2d	8

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
SWEEPSTAKES ON FINE WOOLS.			
Ram and 5 of his get.			
Copper & McFarland, Mt. Vernon, O	Doctor		
" "	Comet		
Frank P. Spivey, Fairview, O	Smuggler		
Caton, Hill & DeWolf, Johnstown, O	Major, Jr		
R. Johnston, Utica, O			
E. J. Hiatt & Bros., Chester Hill, O	Ohio	1st	$25
J. G. Blue, Cardington, O	Bower		
J. H. Clark, Kenton, O	Eureka		
Ewe with 3 of her lambs.			
E. J. Hiatt & Bros., Chester Hill, O		1st	15
Flock of 1 ram, 3 ewes over 2 years, 3 ewes over 1 and under 2 years, and 3 ewe lambs bred and owned by the exhibiter.			
Copper & McFarland, Mt. Vernon, O			
Frank P. Spivey, Fairview, Va			
Caton, Hill & DeWolf, Johnstown, O			
R. Johnston, Utica, O			
E. J. Hiatt & Bros., Chester Hill, O		1st	25
Trained Shepherd dog.			
H. E. Clark, Pittsfield, O		1st	20
SWEEPSTAKES ON LONG WOOLS.			
Ram with 3 of his get.			
Abner Strawn, Ottawa, Ill		1st	15
J. J. Dodge & Sons, South New Lyme, O			
Ewe with two of her lambs.			
J. J. Dodge & Sons, South New Lyme, O		1st	10
Flock of 1 ram and 5 ewes.			
John J. Maxon, Gallipolis, O			
Abner Strawn, Ottawa, Ill			
J. J. Dodge & Sons, South New Lyme, O		1st	20
SWEEPSTAKES ON DOWNS.			
Flock of 1 ram and 5 ewes.			
T. B. Bennington, Laporte, O			
Anderson & Price, Anderson, O		1st	20
S. H. Todd, Wakeman, O			

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
SWINE—BERKSHIRES.			
Boar 2 years and over.			
H. F. Hudson, Rootstown, O			
John H. Roe & Bro., Newark, O			
Chas. Elliott & Son, Bladensburg, O		2d	15
B. Funk, Rows, O			
D. W. Todd & Son, Urbana, O		1st	25
Boar 1 year and under 2.			
H. F. Hudson, Rootstown, O			
W. L. Mallow, New Holland, O			
A. Ware, Washington C. H., O		1st	25
Clifford & White, Wellington, O		2d	15
Chas. Elliott & Son, Blandensburg, O			
Boar under 1 year.			
H. F. Hudson, Rootstown, O			
W. L. Mallow, New Holland, O			
A. Ware, Washington C. H., O			
" "			
A. M. Fulford, Bellaire, Mich		1st	20
" "			
John A. Roe & Bro., Newark, O			
Clifford & White, Wellington, O		2d	0
Wm. Pryor, Paris, Ky			
D. W. Todd & Son, Urbana, O			
Sow 2 years and over.			
A. Ware, Washington C. H., O			
" "		2d	12
A. M Fulford, Bellaire, Mich			
" "			
Wm. Smith, Detroit, Mich			
" "		1st	20
Chas. Elliott & Son, Blandensburg, O			
D. W. Todd & Son, Urbana, O			
Sow 1 year and under 2.			
H. F. Hudson, Rootstown, O			
W. L. Mallow, New Holland, O			
" "			
A. Ware, Washington C. H., O		1st	20
" "			
A. M. Fulford, Bellaire, Mich			
" "			
Wm. Smith, Detroit, Mich			
" "			
John H. Roe & Bro., Newark, O			
D. W. Todd & Son, Urbana, O		2d	10

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Sow under 1 year.			
H. F. Hudson, Rootstown, O			
W. L. Mallow, New Holland, O			
A. Ware, Washington C. H., O			
“ “			
Wm. Smith, Detroit, Mich			
John H. Roe & Bro., Newark, O			
Clifford & White, Wellington, O		2d	8
D. W. Todd & Son, Urbana, O		1st	15
A. M. Fulford, Bellaire, O			
Sow with litter of pigs.			
H. T. Hudson, Rootstown, O			
A. Ware, Washington C. H., O			
W. L. Mallow, New Holland, O			
Clifford & White, Wellington, O		1st	25
“ “			
Chas. Elliott & Son, Blandensburg, O			
B. Funk, Rows, O			
D. W. Todd & Son, Urbana, O		2d	15
POLAND CHINAS.			
Boar 2 years and over.			
A. E. Slaughter, South Charleston, O	Tom Corwin	2d	15
Jno. J. Maxon, Gallipolis, O			
E. & J. M. Clever, Bloomingsburg, O	Swigart	1st	25
“ “	Hopeful		
L. E. Parrett, Washington C H., O	Midnight		
R. S. Bousman, Troy, O			
T. C. Robinson, Piqua, O			
Boar 1 year and under 2.			
A. E. Slaughter, South Charleston, O	Black Dick	1st	25
E. & J. M. Clever, Bloomingsburg, O	Leader		
Lon Hunter, Morrow, O	Modock Chief	2d	15
L. E. Parrett, Washington C. H., O			
Boar under 1 year.			
A. E. Slaughter, South Charleston, O	Happy Boy		
“ “	Corn Prince		
“ “	Favorite	1st	20
L. C. Nixon, Fort Ancient, O			
“ “			
E. & J. M. Clever, Bloomingsburg, O			
“ “			
Lon Hunter, Morrow, O		2d	10
L. E. Parrett, Washington C. H., O	Hancock		
R. S. Bousman, Troy, O			
T. C. Robinson, Piqua, O			

ENTRIES, AWARDS, ETC —Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Sow 2 years and over.			
A. E. Slaughter, South Charleston, O.	Black Sally		
“ “	Goldsmith Maid		
E. & J. M. Clever, Bloomingsburg, O.	Lady Blondin		
“ “	Greenwood Lass		
Lon Hunter, Morrow, O.	Lady Maude	1st	$20
L. E. Parrett, Washington C. H., O.	Lule 3d		
“ “	Bessie Pugh 2d	2d	12
R. S. Bousman, Troy, O.			
Sow 1 year and under 2.			
A. E. Slaughter, South Charleston, O.	Maud		
“ “	Miss Duffy	2d	15
John J. Maxon, Gallipolis, O.			
E. & J. M. Clever, Bloomingsburg, O.	Idle Beauty		
“ “	Nellie Bly 7th		
“ “	Greenwood Bess 2d		
L. E. Parrett, Washington C. H., O	Maud Muller	1st	20
“ “	Kitty Clover		
S. H. Todd, Wakeman, O.			
L. C. Nixon, Fort Ancient, O.			
Sow under 1 year.			
A. E. Slaughter, South Charleston, O.			
“ “			
L. C. Nixon, Fort Ancient, O.		1st	15
E. & J. M. Clever, Bloomingsburg, O.			
“ “			
“ “			
Lon Hunter, Morrow, O.			
L. E. Parrett, Washington C. H., O.			
“ “			
A. E. Slaughter, South Charleston, O.		2d	8
T. C. Robinson, Piqua, O.			
Sow with litter of pigs.			
A. E. Slaughter, South Charleston, O.			
L. C. Nixon, Fort Ancient, O.			
John J. Maxon, Gallipolis, O.			
Lon Hunter, Morrow, O.		1st	25
T. C. Robinson, Piqua, O.		2d	15
S. H. Todd, Wakeman, O.			
CHESTER WHITES.			
Boar 2 years and over.			
S. H. Todd, Wakeman, O		1st	15

ENTRIES, AWARDS, ETC—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
Boar 1 year and under 2.			
S. H. Todd, Wakeman, O		1st	15
Sow 2 years and over.			
S. H. Todd, Wakeman, O		1st	15
" "		2d	10
Sow 1 year and under 2.			
John J. Maxon, Gallipolis, O		1st	15
S. H. Todd, Wakeman, O		2d	10
Sow with litter of pigs.			
S. H. Todd, Wakeman, O		1st	15
ESSEX.			
Boar 2 years and over.			
Wm. Smith, Detroit, Mich		1st	15
Boar 1 year and under 2.			
Wm. Smith, Detroit, Mich		1st	15
" "		2d	10
Sow 2 years and over.			
Wm. Smith, Detroit, Mich		1st	15
" "		2d	10
Sow 1 year and under 2.			
Wm. Smith, Detroit, Mich		1st	15
SUFFOLK.			
Boar of any age.			
John J. Maxon, Gallipolis, O			
T. B. Bennington, Laporte, O		2d	10
Wm. Smith, Detroit, Mich		1st	15
" "			
Sow of any age.			
John J. Maxon, Gallipolis, O			
" "		2d	5
Wm. Smith, Detroit, Mich.		1st	10
" "			

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
SWINE SWEEPSTAKES.			
Boar of any age or breed.			
John J. Maxon, Gallipolis, O.			
E. & J. M. Klever, Bloomingsburg, O.	Swigart		
" "	Leader		
L. E. Parrett, Washington C. H., O.	Midnight		
A. E. Slaughter, South Charleston, O.	Fred Corwin	1st	$30
" "	Black Dick		
A. M. Fulford, Bellaire, Mich.			
Sow any age or breed.			
John J. Maxon, Gallipolis, O.			
E. & J. M. Klever, Bloomingsburg, O.			
" "			
Lon Hunter, Morrow, O.			
A. Ware, Washington C. H., O.		1st	20
L. E. Parrett, Washington C. H., O.			
A. E. Slaughter, South Charleston, O.	Goldsmith Maid		
" "	Daisey		
A. M. Fulford, Bellaire. Mich.			
Wm. Smith, Detroit, Mich.			
A. M. Fulford, Mich.			
Fat hog.			
Wm. Smith, Detroit, Mich.		1st	15
L. E. Parrett, Washington C. H., O.			
A. E. Slaughter, South Charleston, O.			
Herd of Poland Chinas.			
E. & J. M. Klever, Bloomingsburg, O.			
Lon Hunter, Morrow, O.		1st	S. M.
L. E. Parrett, Washington C. H., O.			
A. E. Slaughter, South Charleston, O.			
Herd of Chester Whites.			
S. H. Todd, Wakeman, O.		1st	S. M.
Herd of Berkshires.			
A. Ware, Washington C. H., O.		1st	S. M.
A. M. Fulford, Bellaire, Mich.			
Clifford & White, Wellington, O.			
D. A. Todd & Son, Urbana, O.			
Herd of Essex.			
Wm. Smith, Detroit, Mich.		1st	S. M.
POULTRY.			
Pair white Cochins Fowls.			
W. H. Todd, Vermillion, O.		1st	3
T. A. Mendenhall, Woodington, O.		2d	2

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and post-office.	Name of animal.	Premium.	Amount.
White Cochin chicks.			
W. B. Shyrigh, Urbana, O.		1st	$2
Black Cochin Fowls.			
W. H. Todd, Vermillion, O.		1st	3
W. L. Mallow, New Holland, O		2d	2
Partridge Cochin Fowls.			
W. B. Shyrigh, Urbana, O.		1st	3
W. L. Mallow, New Holland, O.		2d	2
Partridge Cochin chicks.			
W. B. Shyrigh, Urbana, O.		1st	2
S. M. Shedd, Columbus, O.		2d	1
Buff Cochin Fowls.			
W. H. Todd, Vermillion, O.		1st	3
"		2d	2
Light Brahma Fowls.			
Waltman & Bishop, Springfield, O.		1st	3
A. J. Baldwin, Blanchester, O.		2d	2
Light Brahma chicks.			
Waltman & Bishop, Springfield, O.		1st	2
W. H. Todd, Vermillion, O.		2d	1
Dark Brahma Fowls.			
W. H. Todd, Vermillion, O.		1st	3
Chas. Gammerdinger, Columbus, O.		2d	2
Mallay Fowls.			
J. W. Opfer, Elyria, O.		1st	3
"		2d	2
Earl of Derby game.			
J. W. Opfer, Elyria, O.		1st	3
"		2d	2
Brown-breasted red game.			
J. W. Opfer, Elyria, O.		1st	3
"		2d	2
Black-breasted red game.			
J. W. Opfer, Elyria, O.		1st	3
W. L. Mallow, New Holland, O.		2d	2

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and address.	Name of animal.	Premium.	Amount.
Duck-wing game.			
J. W. Opfer, Elyria, O.		1st	$3
"		2d	2
Pile game.			
J. W. Opfer, Elyria, O.		1st	3
"		2d	2
Hanny game.			
J. W. Opfer, Elyria, O.		1st	3
"		2d	2
Any other variety game.			
Waltman & Bishop, Springfield, O.		1st	3
W. L. Mallow, New Holland, O.		2d	2
Colored Dorkins.			
W. H. Todd, Vermillion, O		1st	3
"		2d	2
White Dorkins.			
W. H. Todd, Vermillion, O.		1st	3
T. A. Mendenhall, Woodington, O.		2d	2
White-crested black Polands.			
W. H. Todd, Vermillion, O.		1st	3
Chas. McClave, New London, O.		2d	2
White Polands.			
Waltman & Bishop, Springfield, O.		1st	3
" "		2d	2
Silver Polands.			
Chas. Gammerdinger, Columbus, O.		1st	3
Chas. McClave, New London, O.		2d	2
Golden Polands.			
J. W. Opfer, Elyria, O.		1st	3
Jacob H. Cale, Harlem, O.		2d	2
Black Spanish.			
Chas. McClave, New London, O.		1st	3
W. L. Mallow, New Holland, O.		2d	2
White Leghorns.			
Waltman & Bishop, Springfield, O.		1st	2
W. H. Todd, Vermillion, O.		2d	3

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and address.	Name of animal.	Premium.	Amount.
Brown Leghorns.			
Chas. McClave, New London, O		1st	$3
W. H. Todd, Vermillion, O		2d	2
Black Leghorns.			
Waltman & Bishop, Springfield, O		1st	3
Chas. Gammerdinger, Columbus, O		2d	2
Golden Spangled Hamburgs.			
Geo. R. Kelly, Elyria, O		1st	3
W. H. Todd, Vermillion, O		2d	2
Silver Spangled Hamburgs.			
W. H. Todd, Vermillion, O		1st	3
"		2d	2
Silver Penciled Hamburgs.			
W. H. Todd, Vermillion, O		1st	3
S. E. Wurst, Elyria, O		2d	2
Black Hamburgs.			
W. H. Todd, Vermillion, O		1st	3
W. L. Mallow, New Holland, O		2d	2
Plymouth Rock.			
S. E. Wurst, Elyria, O		1st	3
W. L. Mallow, New Holland, O		2d	2
Plymouth Rock chicks.			
Chas. McClave, New London, O		1st	2
" "		2d	1
Seabright Bantams.			
W. H. Todd, Vermillion, O		1st	2
T. A. Mendenhall, Woodington, O		2d	1
Game Bantams.			
S. E. Wurst, Elyria, O		1st	2
W. H. Todd, Vermillion, O		2d	1
Any other variety Bantams.			
Chas. McClane, New London, O		1st	
Frank Gordon, Columbus, O		2d	

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and address.	Name of animal.	Premium.	Amount.
Houdans.			
W. H. Todd, Vermillion, O		1st	$3
Chas. McClave, New London, O		2d	2
La Fleche.			
W. H. Todd, Vermillion, O		1st	3
"		2d	2
Crevecoeurs.			
W. H. Todd, Vermillion, O		1st	3
"		2d	2
Capons.			
W. H. Todd, Vermillion, O		2d	3
S. E. Wurst, Elyria, O		1st	5
Sumatra Pheasants.			
J. W. Opfer, Elyria, O		1st	3
"		2d	2
Peafowls.			
Jacob H. Cole, Harlem, O		1st	3
T. A. Mendenhall, Woodington, O		2d	2
Guinea Fowls.			
S E. Wurst, Elyria, O		1st	3
W. L. Mallow, New Holland, O		2d	2
Cayuga ducks.			
S. E. Wurst, Elyria, O		1st	3
W. H. Todd, Vermillion, O		2d	2
Aylesbury ducks.			
W. H. Todd, Elyria, O		1st	3
Waltman & Bishop, Springfield, O		2d	2
Rouen ducks.			
W. H. Todd, Vermillion, O		1st	3
Chas McClave, New London, O		2d	2
Top-knot ducks.			
Chas. McClave, New London, O		1st	3
Jacob H. Cole, Harlem, O		2d	2

ENTRIES, AWARDS, ETC.—Continued.

Owner's name and address.	Name of animal.	Premium.	Amount.
Muscova ducks.			
W. L. Mallow, New Holland, O.		1st	$3
S. E. Wurst, Elyria, O.		2d	2
Any other variety ducks.			
Chas. McClave, New London, O.		1st	3
Waltman & Bishop, Springfield, O.		2d	2
Common turkeys.			
Jacob H. Cole, Harlem, O.		1st	3
W. L. Mallow, New Holland, O.		2d	2
Bronze turkeys.			
H. E. Clark, Pittsfield, O.		1st	4
W. H. Todd, Vermillion, O.		2d	3
African geese.			
W. H. Todd, Vermillion, O.		1st	3
Chas. McClave, New London, O.		2d	2
White Embden geese.			
W. L. Mallow, New London, O.		1st	3
W. H. Todd, Vermillion, O.		2d	2
White China geese.			
S. E. Wurst, Elyria, O.		1st	3
W. H. Todd, Vermillion, O		2d	2
Toulouse geese.			
W. H. Todd, Elyria, O.		1st	3
Chas. McClave, New London, O.		2d	2
Hong Kong geese.			
T. A. Mendenhall, Woodington, O.		1st	3
W. L. Mallow, New Holland, O.		2d	2
Common geese.			
W. L. Mallow, New Holland, O.		1st	3
T. A. Mendenhall, Woodington, O.		2d	2
Ferrets.			
W. L. Mallow, New Holland, O.		1st	2
H. E. Clark, Pittsfield, O.		2d	1
Exhibition of pigeons—6 varieties.			
S. E. Wurst, Elyria, O.		1st	5

Awarding Committee.—Michael Way, South Charleston; W. O'Harra, Columbus; J. F. Phinney, Flint.

LIST OF AWARDS.

CLASSES OTHER THAN LIVE STOCK.

MACHINERY, ENGINES, ETC.

Lord, Bowler & Co., Cleveland, best stationary engine	Sil. Med. and	$30
Huber Manufacturing Co., Marion, best portable steam engine	Sil. Med. and	20
Jno. Thomas & Son, Springfield, second “ “ “	Diploma and	10
Gaar, Scott & Co., Richmond, Ind., best traction farm engine	Diploma and	20
Lord, Bowler & Co., Cleveland, best steam guage		3
Royce & Pulling, Columbus, best steam pump	Diploma and	5
John B. Croft, Mansfield, best portable saw mill	Diploma and	40
James Ohlen, Columbus, best saw gummer		3

Awarding Committee.—Chas. Babbitt, S. W. Robinson, H. McDonald, T. Heller, C. F. Bradley.

SHOP MACHINERY.

Emrich & Ogden, Columbus, best mining machine	$3
M. & D. Krumm, “ “ ornamental fence	5
Berger & Peters, Winchester, “ portable “	3
M. & D. Krumm, Columbus, best iron fence and posts	5
D. H. Wolfe, Clarida, Iowa, best farm gate	3
John Zimmerman, Cincinnati, best fruit dryer	5

Awarding Committee.—A. Edwards, J. H. Kirk, H. J. Smith, A. J. Bennett.

HAY AND HARVESTING MACHINES AND TOOLS.

Faust, Bradley & Co., Chicago, Ill., best horse hay rake (wheel)		$5
J. H. Thomas & Sons, Springfield, “ “ (revolving)		3
Schuan, Clouse, Grosscup & Co., Columbus, best horse hay rake		3
same “ “ and stacker		5
Geo. W. Brown & Co., Galesburg, Ill., corn cutter for cutting stalks in fields		5
J. H. Tompkins, Tiffin, best hay loader		5
Keystone Manufacturing Co., Sterling, Ills., best hay tedder	Diploma.	
Whitely, Fassler & Kelly, Springfield, clover seed harvester other than regular reaper or mower	Diploma or	5
D. M. Osborn & Co., Auburn, N. Y., best grain binder (protested)	Diploma or	6
Whitely, Fassler & Kelly, Springfield, display of haying and harvesting tools	Diploma	

J. A. Barnett, New Carroll, best power hay and straw cutter	$5
Keystone Manufacturing Co., Sterling, Ill., best hand hay and straw cutter	Diploma.

Awarding Committee—J. B. Randall, D M. Hayes, A. J. Bennett.

AGRICULTURAL MACHINES—FIRST DIVISION.

Seymour, Sabin & Co., Stillwater, Minn., best threshing machine	Sil. Med.
Hagerstown Imp. Mfg. Co., Hagerstown, Ind., best clover hulling machine	Sil. Med.
C. G. Hampton, Detroit, Mich., best cider mill press	$5
P. K. Dederick & Co., Albany, N. Y., best hay press	5
Barnard & Lees Manufacturing Co., Moline, Ill., best power corn sheller	5
Keystone Manufacturing Co., Sterling, Ill., best hand corn sheller	3
J. I. Case, Racine, Wis., best grain register	3
Case Manufacturing Co., Racine, Wis., best middlings purifier	5
Keystone Manufacturing Co., Sterling, Ill., best farm feed mill	5
Rennington & Dawson, Middleport, best fanning mill	5
Blount & Wilson, Springfield, best bag truck	3
D. L. Pope & Son, Welshfield, best stock scales	20
Mast, Foos & Co., Springfield, best well pump	3
J. L. Harrison, Columbus, best apparatus, other than pump, for raising water	3
Mast, Foos & Co., Springfield, best self regulating wind mill	8
same " " lawn mower	2

Awarding Committee.—F. Reber, Marion; C. J. Albeck, Dubuque, Iowa; E. B. Monnett, Bucyrus.

AGRICULTURAL MACHINES—SECOND DIVISION.

Keystone Manufacturing Co., Sterling, Ill., best horse power sweep	$10
R. F. Adams, Nashville, Tenn., best grubbing machine	5
Jas. Mossman, Westerville, best stump extractor	Sil. Med.
H. Brewer & Co., Tecumseh, Mich., best brick machine	Sil. Med. or 10
Frey, Sheckler & Hower, Bucyrus, best drain tile machine	Sil. Med. or 10
Chandler & Taylor, Indianapolis, Ind., second best drain tile machine	5
Champaign County Mfg. Co., Urbana, best tile ditching machine	Sil. Med. or 10
S. R. Holt, Worthington, best road bridge	10

Awarding Committee.—P. Hess, G. W. Walters, Geo. Wilson, Clark Dix, J. S. Bishop.

DRILLS, CULTIVATORS, ETC.

P. P. Mast & Co., Springfield, best two horse grain drill	Sil. Med.
Hoosier Drill Co., Richmond, Ind., best one horse grain drill	Diploma.
Vandever Corn Planter Co., Quincy, Ill., best corn drill	Diploma.
Wayne Agricultural Co., Richmond, Ind., best grass broadcast sowing machine	Diploma.
Hoosier Drill Co., Richmond, Ind., best drill, seed and fertilizer attachment	Sil. Med.
Adams & Pyle, Columbus, best horse-power corn planter	Diploma.
Rodman Jones, Chillicothe, best potato planter	Diploma.

B. D. Buford & Co., Rock Island, Ill., best two-horse corn cultivator	$5
Revolving Scraper Co., Columbus, best farm road scraper	3
Jacobs Bros., Columbus, best harrow	3
P. P. Mast & Co., Springfield, best display agricultural implements	20
Keystone Manufacturing Co., Sterling, Ill., second best display agricultural implements	Sil. Med.

Awarding Committee.—W. A. Kelly, Kenton; John Nash, Galena; A. A. Jack, Dayton; John Robinson, West Beaver.

PLOWS.

Bucher, Gibbs & Co., Canton, best plow for general purposes	$8
J. L. Read & Co., Dayton, best stubble plow	Sil. Med. or 8
same " best sod plow	Sil. Med. or 8
Bucher, Gibbs & Co., Canton, best double plow (jointer)	Sil. Med. or 8
J. Zangmister, Bethany, best one horse plow	Diploma or 3
G. Diemer & Co., Columbus, best double shovel plow	Diploma or 3
B. D. Buford & Co., Rock Island, Ill., best three-horse sulky sod plow	10
P. P. Mast & Co., Springfield, best sulky attachment for plow	Diploma.
B. D. Buford & Co., Rock Island, Ill., best three-horse sulky plow for general purposes	10
Bucher, Gibbs & Co., Canton, best improvement in plows	Diploma.
South Bend Chilled Plow Co., South Bend, Ind., best display and greatest variety plows	Diploma and 10
Oliver Chilled Plow Works, South Bend, Ind., second best display and greatest variety plows	Sil. Med.
G. Diemer & Co., Columbus, third best display and greatest variety plows	5

Awarding Committee.—Ed. Hance, J. F. Sifritt, John Robinson, E. B. Monnett, F. Reber.

COLUMBUS, *September* 3, 1880.

To the State Board of Agriculture:

We, your committee appointed to examine the articles entered in Book 45, report as follows:

Entry No. 1—a clay crusher, intended for use by tile and brick-makers, is a powerful machine, and for preparing strong clays for use in tile machines is invaluable.

Entries Nos. 2 and 3—the latest improvements for securing the delivery of clean corn from elevators.

Entries Nos. 4, 5, 6, 7, 8, made a fine show of hunting and fishing goods, well deserving of the commendation given.

Entries Nos. 9 and 10, representing reapers and mowers, made a good display.

Entry No. 11—nothing special to be said.

Entries Nos. 12, 13 and 14, were well made articles of road tools. Nothing new.

Entries 16 and 17—strong and well made.

Entry No. 18—wood-workers' vise, is very highly commended; has only to be seen used to be fully appreciated as a time and labor saver.

Entry No. 19—corn-sheller and grinder combined; commended for its simplicity and good work.

Entry No. 21—good.

Entry No. 22—commended for simplicity, adaptability and cheapness.

Entries Nos. 23, 24, 25 and 26, made a good display of mowers with combinations.

Entry No. 27—a carriage gate—good.

Entry No. 28—not good.

Entries Nos. 29, 30 and 31—a good display of mowers and reapers, and commended for attachment of controlling action of rake.

Entries Nos. 32 and 33 were models.

Entry No. 34—commended, as was also entry No. 35, because of their apparent utility; but to properly determine their value they should have been seen at work.

Entry No. 37—a coal-mining machine, worked by steam. Should have been examined by a committee of experts, as your committee have no knowledge of its utility.

Entries 38 and 39—simple, but good.

Entry No. 40—not found.

Entry No. 41—good.

Entry No. 48—device for watering stock; worthy of commendation, and apparently of great practical utility.

Entries 49, 50 and 51, check rowers, very good.

Entry No. 52—sewing-machine treadle; commended as a help to the ladies, both as to the ease of its working, and from a sanitary point of view.

Entries 53, 54, 55, and 56—drills and corn-planters; the display was fine; the corn-planter and drill combined commended, as was also the two-horse corn-drill.

Entry No. 57—portable derrick; commended.

Entry No. 58—a corn-drill with fertilizing attachment; is very highly commended by the committee for the combination, and the perfectness of its working.

Entry No. 60—an excavator, with cart attached, and with dumping attachment, to your committee appeared as a very valuable combination for labor saving, and was cheerfully commended.

Many of the most valuable improvements in agricultural and other machinery necessarily are placed in this book, at each recurring fair, and to thoroughly examine them would require a much longer time than a committee is usually willing to devote, your present committee not claiming to be an exception. The character of the articles usually entered in this book requires a committee of experts, or at least parties well versed in the use of similar machinery, and again your committee have, perhaps, failed to meet their own requirement.

Your committee desire to return their thanks to Mr. Charles Smith and his assistants for courtesies rendered.

J. T. Busby,
H. J. Walls,
A. C. Williams,
Awarding Committee.

WORKED METALS.

Philip Kinnel,	Columbus,	best display of	axes	$3
C. Eberly,	"	"	window trimmings	3
J. W. Meek,	"	"	hames	3
same	"	"	saddle trees	3
same	"	"	saddlers' hardware	5
Bidleman Bros.,	"	"	horse-shoes and horse-shoe nails	3
Philip Kinnel,	"	"	mechanics' tools other than cooper	5
E. B. Armstrong,	"	"	Britannia and Japan ware	5
Aikin & Hampson,	"	"	kitchen utensils, brass or copper	5
same	"	"	kitchen utensils of tin	5
James Ohlen,	"	"	circular and mill saws	5
same	"	"	cross-cut and hand-saws	5
James W. Meek,	"	"	brushes	3
same	"	"	shoemakers' tools, etc	5
A. J. Lytle,	Hillsborough,	"	pruning tools	3

Awarding Committee.—B. F. Rees, Jas. S. Abbott, Wm. Cull.

STOVES, ETC.

E. B. Armstrong,	Columbus,	best cooking-stove (wood)	Sil. Med.
same	"	" " retail price considered	Diploma.
same	"	" " for coal	Sil. Med.
C. Emrich,	"	" " retail price considered	Diploma.
Aikin & Hampson,	"	best parlor stove	$5
C. Emrich,	"	best display of stoves by manufacturer	10
J. J. Voglegesang,	"	best furnace for heating dwellings	Sil. Med.
E. B. Armstrong,	"	best base-burner for soft coal	Sil. Med.
Aikin & Hampson,	"	best cooking range	$5
Aston & Huff,	"	best parlor grate with summer front	3
C. Emrich,	"	best school-house stove	5
Aston & Huff,	"	best slate or iron mantel	Diploma.
C. Emrich,	"	best display of plain iron hollow ware	$3
Ornamental Bronze Co.,	Bridgeport, Conn.,	best ornamental statuary of metal	5
H. Mithoff & Co.,	Columbus,	best display of granite and marbleized ware	5
J. H. Watt & Bro.,	Barnesville,	best self-oiling coal car wheels	Diploma.

Awarding Committee.—R. P. Cannon, W. H. Hill, C. R. Harmon, C. Shelden.

VEHICLES.

J. Cunningham, Sons & Co.,	Rochester,	best and handsomest barouche or coach	$20
Thomas Anderson,	Columbus,	best and handsomest two-horse family carriage	15
J. Immel & Son,	"	best and handsomest one-horse family carriage	15
same	"	best top buggy	10
Hayes Carriage Co.,	"	best open buggy	10
same	"	best pony phaeton	5
S. Toomey & Son,	Canal Dover,	best sulky	5
Heckman & Foster,	Elmore,	best farm wagon	10

J. Immel & Son	Columbus	best spring market wagon	$5
same	"	best express wagon	5
Revolving Scraper Co.	"	best wheelbarrow	3
J. G. Edwards & Co.	"	best wagon or carriage brake	3
same	"	best wagon spring seat	2
Mithoff, Evans & Hubbard	Columbus	best display carriages or cabs for children	5
J. Immel & Son	Columbus	best carriage wheels, etc	8
G. Schreyer & Co.	"	best wagon skeins	2
C. Fockler & Co.	Dubuque, Iowa	best adjustable buggy top	5
Thomas Anderson	Columbus	best display carriage springs	5
same	"	best display iron axles for carriages and wagons	5
J. Immel & Son	"	best display carriages and buggies by manufacturer	Diploma.

Awarding Committee.—Geo. Titus, J. W. Clark, N. Finegan, Wm. Webb.

HOUSEHOLD IMPLEMENTS.—WOODENWARE, ETC.

A. L. Yardley	Columbus	best cedar ware	$3
same	"	best pine ware	3
same	"	best oak ware	3
J. A. Vandegriff	"	best willow ware	3
same	"	best osier willow	3
Harry Richardson	Kirkersville	best split wood baskets	3
A. L. Yardley	Columbus	best coopers' ware	5
same	"	best grain measures	3
same	"	best butter firkins	3
Door, Sash and Lumber Co.	Columbus	best worked flooring	3
same	"	best pine, oak, or walnut doors	5
same	"	best display window blinds	5
same	"	best display window shades	3
same	"	best turning-lathe work	3
J. J. H. Condit	Columbus	best wall pocket	3
James Jones	"	best wall bracket	3
J. S. Wilson	Indianapolis, Ind.	best fly screen for windows, etc	2
same	"	best collection screen work	3
same	"	best improved kitchen safe	3
same	"	best device for hanging and adjusting screen doors	Diploma.
J. Swickard	Hope	best home-made axe handle	1
A. L. Yardley	Columbus	best fruit and step-ladder	3
H. C. Smith	Bellows Falls, Vt.	best churn	3
same	"	best butter worker	3
H. Mithoff & Co.	Columbus	best apple parer	3
A. L. Yardley	"	best half dozen washboards	3
L. D. Evans	"	best washing-machine	5
Foos & Co.	Springfield	best clothes-wringer	3

C. M. Ambrose,	Columbus,	best mangle, or ironing-machine	$3
A. L. Yardley,	"	best clothes-horse to occupy least space	3
Aston & Huff,	"	best water filter	3
Mosely & Stoddard,	Poultney, Vt.,	best creamery for dairy use	5
Aston & Huff,	Columbus,	best refrigerator	3

Awarding Committee.—H. C. Strow, James C. Dunn, H. C. Groschner.

MINERALS AND CHEMICALS.

Fish Steam Stone Works,	Columbus,	best building stone	$5
Robt. Innis,	Columbus,	best Ohio woods	Sil. Med.
John Felton,	Buffalo, N. Y.,	best barrel common salt	5
same	"	best sack table salt	2
Dent & Harris,	Columbus,	best Ohio bituminous coal, household purposes	5
same	"	" mfg. purposes	5
Sparks & Bros.,	"	best ivory black	2
same	"	best Prussian blue	2
same	"	best coal varnish	2
same	"	best glue	2
same	"	best linseed oil	2
same	"	best white lead	2
same	"	best specimen lard oil	2
same	"	best display potash, etc	5
same	"	best lubricating petroleum	3
same	"	best display illuminating, non-explosive mineral oil	5

Awarding Committee.—N. S. Townsend, N. B. Abbott, H. G. Weltz.

GLASS, CROCKERY, ETC.

H. Mithoff,	Columbus,	best specimen stained glass	$3
same	"	best display of glass	10
Wassal Fire Clay Co.,	Columbus,	best fire bricks	3
same	"	Ohio fire clay	5
same	"	display Ohio clays for pottery	5

Awarding Committee.—R. A. Taylor, L. Reber, Mrs. E. Livingston, S. N. Field.

HOUSEHOLD FABRICS.

Mrs. J. P. Swisher,	Hebron,	best rag carpet	$5
Mrs. Mary Maxwell,	Reynoldsburg,	second best rag carpet	3
Mrs. E. Peters,	Norwalk,	best hearth rug	3
Mrs. W. Turner,	North Fairfield,	second best hearth rug	2
Mrs. L. R. Pitzer,	Newark,	best yarn rug	3
Mrs. M. Ferris,	Plain City,	second best yarn rug	2
Mrs. W. S. Shepherd,	Columbus,	best rag rug	3
Mrs. Eliza C. Galbreath,	Canton,	second best rag rug	2
Mrs. Maggie Graham,	Reynoldsburg,	best ten yards domestic flannel	3
Mrs. Mary Maxwell,	Reynoldsburg,	second best ten yards domestic flannel	2
Mrs. Maggie Graham,	Reynoldsburg,	best ten yards domestic linen	3

Mrs. R. Johnston, Pataskala, second best ten yards domestic linen	$2
same “ best fifteen yards tow cloth	3
same “ best pair woolen knit stockings	2
Mrs. Mary Hogan, Columbus, second best pair woolen knit stockings	1
Mrs. W. R. Sprague, Reynoldsburg, best pair linen knit stockings	2
Mrs. A. L. Perry, Delaware, best pair cotton knit stockings	2
Mrs. Henry Reiber, Delaware, second best pair cotton knit stockings	1
Mrs. A. L. Perry, Delaware, best pair cotton knit socks	2
Mrs. H. R. Geisey, Lancaster, second best pair cotton knit socks	1
Mrs. Mary Maxwell, Reynoldsburg, best pair woolen knit socks	2
Mrs. Maggie Graham, Reynoldsburg, second best pair woolen knit socks	1
Mrs. W. Turner, North Fairfield, best pair woolen knit mittens	2
Mrs. H. R. Geisey, Lancaster, second best pair woolen knit mittens	1
Miss Anna Best, Marion, best pair woolen knit mittens by misses	2
Mrs. K. W. Estep, Columbus, best netting	2
Mrs. Mary Maxwell, Reynoldsburg, best worsted knit stockings	2
Mrs. W. Turner, North Fairfield, stocking yarn	2
Mrs. W. R. Sprague, Reynoldsburg, best woolen shawl	3
Mrs. G. H. Hampson, Columbus, best woolen knit shirt	2
Mrs. Jas. Connell, Reynoldsburg, best straw hat	1
Mrs. Teresa Wise, Columbus, best bed spread	3
Mrs. D. Trombo, Hope, best pound linen sewing thread	2

Awarding Committee.—Mrs. I. L. Fisher, Grafton; Miss Callie Kramer.

NEEDLE WORK.

Mrs. Minard, Norwalk, best specimen ornamental needle work	$3
Mrs. W. R. Sprague, Reynoldsburg, best gent's shirt, hand made	2
Mrs. Mary Maxwell, ” ” machine made	2
Mrs. Minard, Norwalk, best chemise	2
Mrs. W. Turner, North Fairfield, best specimen hem stitching	1
Mrs. Mary E. Taylor, Norwalk, best pillow shams	2
same ” best child's dress	3
Mrs. W. R. Sprague, Reynoldsburg, best suit lady's underwear	5
same ” best lady's night dress	3
same ” best bands and sleeves	1
Mrs. Mary Taber, Canton, best handkerchief	1
Mrs. John Boyer, Circleville, best silk quilt	4
Mrs. E. J. Blount, Columbus, best velvet quilt	4
Mrs. Ella Morrow, Marion, best white quilt	2
Mrs. Mary Maxwell, Reynoldsburg, best patch work quilt	2
Mrs. C. H. Croach, Marion, best fancy worked quilt	2
Mrs. John Boyer, Circleville, best cradle quilt	1
Singer Manufacturing Co., Columbus, best display of machine work	5
Mrs. Mary E. Taylor, best display needle work	5

BRAIDING AND EMBROIDERY.

Mrs. K. W. Estep, Columbus, best ottoman cover	$2
Mrs. P. R. Wilson, ” best table cover	3
Mary E. Zuck, ” best piano cover	5
J. J. Kimbull, Canton, best lounge cover	3
Mrs. P. R. Wilson, Columbus, best silk embroidered chair cover	3
Mrs. W. R. Sprague, Reynoldsburg, best silk embroidered infant's shawl	2
Mrs. R. Schoenberg, Columbus, best silk embroidered infant's sacque	2
Miss B. O. Myers, Columbus, best silk embroidered infant's skirt	2
Mrs. W. R. Sprague, Reynoldsburg, best silk embroidered child's dress	3
Miss Carrie Nelson, Columbus, best silk embroidered pin cushion	1
Mrs. P. R. Wilson, Columbus, best silk embroidered slippers	1
Mrs. Jno. Cashatt, Columbus, best embroidered cloak	5
Mrs. W. R. Sprague, Reynoldsburg, best cheneille embroidered slippers	1
Miss Annie Deal, Columbus, best specimen of cheneille, embroidery	2
Mrs. H. E. Ide, Columbus, best worsted embroidered chair cover	2
Nattie Glover, Columbus, best worsted embroidered sofa cushion	2
Miss Nettie Becker, ” ” picture	2
Mrs. Jno. Cashatt, Columbus, best display silk embroidery	10
Mrs. H. E. Ide, ” ” worsted embroidery	5
Mrs. Geo. Follet, ” ” cotton embroidery	5
Mrs. W. R. Sprague, Reynoldsburg, best display linen embroidery	5
same ” ” cheneille embroidery	5
Mrs. S. Courtney, Canton, best specimen cretone applique	3
Maggie Conrad, Columbus, ” embroidery on Java canvass	3
Miss Cora E. Barrett, Columbus, best lambrequin for mantle	3
Mrs. S. J. Courtney, Canton, ” ” bracket	2
Mrs. E. Hock, Marion, best specimen braiding	3
Mrs. Mary Faber, Canton, best braided pillow shams	2
Miss Ella Morrow, Marion, ” ”	2
Miss Carrie Nelson, Columbus, best embroidered yoke and cuffs	2

Awarding Committee—Mrs. G. W. Trowbridge, Hamilton; Mrs. J. B. Estep, Columbus; Mrs. Katie W. Estep, Columbus; Mrs. R. C. Bartlett, Columbus.

CROCHET AND OTHER ORNAMENTAL WORK.

Mrs. J. J. Kimball, Canton, best lamp-stand mat	$1
Mrs. E. Hock, Marion, best lace-work collar	2
Mrs. L. H. Hopkins, Van Wert, best lace handkerchief	1
Mrs. W. Turner, N. Fairfield, best specimen tetting	1
Mrs. H. R. Geisey, Lancaster, best tetting collar	1
Miss Katie Zimmer, Columbus, best large Afghan	5
Mrs. W. H. Peters, Norwalk, best child's afghan	3
Miss Hattie Bortle, Columbus, crochet shawl	3
Mrs. E. M. Clark, Lithopolis, best crochet hood	2
Mrs. L. C. Miner, Lithopolis, best crochet infant's sacque	2
Mrs. Carrie Kelsey, Columbus, best crochet mittens	1

Mrs. William Holmes, Marion, best crochet collar	$1
Miss Ida Gregory, Marion, best crochet chair tidy	2
Mrs. W. Turner, N. Fairfield, best crochet work, wool	3
Miss Laura Hardy, Marion, best display crochet work	5
Mrs. R. Schoenberg, Columbus, best specimen stamping	1
Mrs. Mary Faber, Canton, best specimen cut worsted work	2
Miss F. Buckler, Columbus, best specimen hair work	3
Mrs. L. C. Miner, Lithopolis, best specimen bead work	3
Mrs. Charles Obetz, Columbus, best specimen gold thread work	2
same ” ” silver thread work	2
Miss Lizzie Miller, Pataskala, best specimen shell work	2
Harry Meyer, Canton, best paper-mache work	3
Master F. Hock, Marion, best hand-carving	2
Miss Pet Schenck, Winchester, best hand lace work	3
Mrs. Barnum, Norwalk, moss or lichen work	1
Mrs. Chas. Obetz, Columbus, specimen ornamental zephyr flowers	2
Mrs. C. Connor, Columbus, best specimen feather flowers	1
Mary A. Ackerman, Columbus, best specimen wax flowers	1
Miss Mamie Roth, Columbus, best motto on perforated paper	2
Miss Rose W. Zuck, Columbus, best display air castles	1
Mary Cross, Columbus, best evening nubia	2
Mrs. L. H. Hopkins, Van Wert, specimen point lace	3
Mrs. M. B. Everetts, Columbus, best specimen darning on tulle	2
Mrs. W. R. Sprague, Reynoldsburg, best toilet set	2
Miss Rose W. Zuck, Columbus, best card receiver	2
Mrs. Kezia Katon, Reynoldsburg, best hanging basket	2
Mary A. Ackerman, Columbus, best preserved flowers	2
Mrs. W. Turner, N. Fairfield, best prepared ferns	3
Mrs. L. P. Coman, Hanover, best display porcelain painting	5
Miss Nellie Merrick, Columbus, best display wood carving	5

Awarding Committee—Mrs. S. A. Barrett, Mrs. J. M. Godman, Miss Katie Jones.

CABINET WARE.

Halm, Bellows & Butler,	Columbus,	best lounge	$5
Columbus Cabinet Co.,	”	best extension table	8
same	”	office chair	3
Halm, Bellows & Butler,	”	best center table	5
same	”	best child's bedstead	3
Columbus Cabinet Co.,	”	best set parlor furniture	20
Ohio Furniture Co.,	”	best set chamber furniture	20
Columbus Cabinet Co.,	”	best set library furniture	15
Halm, Bellows & Butler,	”	best set dining-room furniture	10
Columbus Cabinet Co.,	”	best display furniture	25
Halm, Bellows & Butler,	”	best display mattresses	10
Columbus Cabinet Co.,	”	best spring-bed bottom, hair top	5
Halm, Bellows & Butler,	”	best spiral spring-bed	3

Ohio Furniture Co ,	Columbus	best woven wire mattress	$3
Columbus Cabinet Co.,	”	best graded seats and desks—for school	5
Ohio Furniture Co.,	”	best writing-desk, office use	3
same	”	” lady's	3
same	”	book case and secretary	5
Columbus Cabinet Co.,	”	best wardrobe	5
Halm, Bellows & Butler,	”	best invalid chair or couch	5
Columbus Cabinet Co.,	”	best desk chairs	10
Halm, Bellows & Butler,	”	best hall rack	5
Columbus Cabinet Co.,	”	best pier glass	5
Halm, Bellows & Butler,	”	best mantle	5
Kershaw, Krauss & Putnam,	”	best display body Brussels carpet	10
same	”	tapestry	10
same	”	carpets in variety	Sil. Med.
Halm, Bellows & Butler,	”	best curtains and lambrequins	5
Kershaw, Krauss & Putnam,	”	best window shades	Diploma.
same	”	hearth rug	$5

Awarding Committee.—Martin Barnhart, Marion; Jas. Lenton, Clarksville; John Weimer.

FACTORY GOODS.

L. Rambo & Co., Dresden, best three pieces fancy wool cassimeres	$5
same ” ” plain wool cassimeres	5
same ” five pieces assorted tweed	5
same ” three pieces boys' checked cassimeres	3
same ” five pieces check or plaid flannel	5
same ” two pieces white flannel	3
same ” two pieces colored flannel	3
same ” two pieces colored twilled flannel	3
Delaware Woolen Mill Co., Delaware, best piece domestic or cotton warp	3
F. Gray & Co., Piqua, best pieces 8x6 sheeting flannel	3
L. Rambo & Co., Dresden, best five pieces 3x4 or 6x4 fancy dress plaids	5
F. Gray & Co., Piqua, best three pair wool blankets	3
Stewart & Mickle, Mechanicsburg, best 25 pounds assorted stocking yarn	3
J. & S. Clasgens, New Richmond, best 10 pieces balmoral	3
same ” ” zephyr	3
L. Rambo & Co., Dresden, best 3 pieces satinet	3
Zanesville Woolen Manufacturing Co., Zanesville, best 5 pieces jeans	5
Delaware Woolen Manufacturing Co., Delaware, best 2 pieces linsey	3
Wm. Armbruster, Columbus, best 5 dozen woolen socks and stockings	5
same ” display of woolen hosiery	5
L. Rambo & Co., Dresden, best display of woolen goods	10
B. Waddle, Marion, best 5 pieces of fine wool	5
same ” 5 pieces of long wool	5
same ” best exhibition of wool	15

Committee recommed that Board omit colored twilled flannels from premium list, and award premium for twilled flannel without regard to color.

Awarding Committee.—D. Clark, Mrs. G. W. Trowbridge, Geo. D. Luman.

BOOTS, SHOES AND LEATHER MANUFACTURERS.

Shoemaker & Son,	Sabina,	best pair dress boots	$3
same	”	gents' dress shoes	3
James W. Meeks,	Columbus,	best light harness collar	1
same	”	draft ”	1
same	”	display of halters	3
same	”	display of carriage, buggy and wagon whips	5
same	”	display of sole leather	3
John Hayes,	”	upper leather	3
James W. Meeks,	”	display harness leather	3
same	”	display skirting leather	3
same	”	½ dozen calf skins	3
John Hayes,	”	dozen kip skins	3

Awarding Committee.—C. F. Stebbins, Columbus; B. Tristime, Marion; Phil. Game, Winchester; Val. Stiers, Haydenville; N. Lorish, G. Rosebridge, John S. Dudly.

MERCHANTS' AND DEALERS' CLASS.

C. L. Clark,	Columbus,	best display cassimeres	$10
same	”	jeans	5
same	”	tweeds	5
same	”	blankets	5
J. Murray Brown,	Columbus,	best display carriage robes	5
same	”	” hats	5
same	”	” ladies' furs	5
same	”	” buck gloves and mittens	3
same	”	” fur ”	3
James A. Meeks,	”	” sheep skin mats	2
J. Murray Brown,	”	best fur robe	3
James W. Meeks,	”	best display horse blankets	3

Awarding Committee.—D. C. Clark, Mrs. G. W. Trowbridge, Geo. D. Luman.

STATIONERS' WARE.

W. C. M. Baker,	Columbus,	best display of bound account books	$5
same	”	best specimen blank book	3
same	”	” paper	3
same	”	specimen writing paper	3
J. F. Earhardt & Co.,	Columbus,	best job printing	5
E. O. Randall & Co.,	”	paper hanging and border	10
W. C. M. Baker,	”	display of paste and bonnet boards	3

Awarding Committee.—O. Carlisle, J. M. Waugh, F. W. Snell.

FIELD CROPS.

B. Cusick, Marion, O.,	crop experiments	First premium	$50
”	crop corn	”	50
Simon Berry, Urbana, O.,	crop of wheat	”	50

FLOUR, GRAIN AND SEEDS.

H. Hymus, Somerset, best one-half bushel white winter wheat	$5
H. Buchwalter, Hallsville, second best one-half bushel white winter wheat	3
David Jones, ” best one-half bushel amber wheat	5
Simon Berry, Urbana, second best one-half bushel amber wheat	3
H. Buchwalter, Hallsville, best one-half bushel red wheat	5
F. M. Whipps, Marion, second best one-half bushel red wheat	3
J. L. Keckley, Marysville, best one-half bushel spring wheat	5
F. M. Whipps, Marion, second best one-half bushel spring wheat	3
J. L. Keckley, Marysville, best one-half bushel rye	3
H. Hymus, Somerset, second best one-half bushel rye	3
W. S. Powell, Elyria, best one-half bushel oats	3
J. W. Waltman, Springfield, second best one-half bushel oats	2
J. L. Keckley, Marysville, best one-half bushel spring barley	3
F. M. Whipps, Marion, second best one-half bushel spring barley	2
J. L. Keckley, Marysville, best one-half bushel winter barley	3
J. W. Waltman, Springfield, second best one-half bushel winter barley	2
B. C. Simms, Groveport, best one-half bushel buckwheat	3
H. Hymus, Somerset, ” flaxseed	3
Mrs. Mary Maxwell, Reynoldsburg, best ten pounds hops	3
J. W. Waltman, Springfield, best one-half bushel timothy	3
H. Hymus, Somerset, ” clover seed	3
J. W. Waltman, Springfield, ” blue grass seed	3
J. L. Keckley, Marysville, ” red top	3
A. W. Livingston, Columbus, ” orchard grass	3
J. W. Waltman, Springfield, ” millet seed	3
Master Willie Hunt, Marion, ” Hungarian seed	4
Mrs. S. W. Park, Hope, best and greatest variety dried fruits	3
Mrs. John Boyer, Circleville, second best and greatest variety dried apples	2
Miss Clara Bieber, Delaware, best sample starch	3
H. Hymus, Somerset, best display cereals	5
L. Swickard, Hope, best peck white beans	2
F. M. Whipps, Marion, second best peck white beans	1
M. D. Clark, Elyria, best display beans	5
A. W. Livingston & Son, Columbus, best one-half peck field peas	2
L. Swickard, Hope, second best one-half peck field peas	1
A. W. Livingston & Son, Columbus, best and greatest variety peas	3
Smith Stimmel, Columbus, best five pounds Kentucky seed leaf tobacco	3
same ” Connecticut seed leaf tobacco	3
Patrick Heffeman, ” Ohio seed leaf tobacco	3
A. W. Livingston, Columbus, best collection garden seeds	5
J. L. Keckley, Marysville, best display meadow or pasture grass seed	10
Julia L. Holt, Worthington, second best display meadow or pasture grass seed	5
“ “ best display grasses [protested]	15

Awarding Committee.—N. S. Townshend, C. L. Dickey, David Taylor.

CORN, ETC.

W. F. Barr, Reynoldsburg, best yellow corn in ear, 1878	$5
F. M. Whipps, Marion, second best	3
B. C. Simms, Groveport, best yellow corn in ear, 1880	5
F. M. Whipps, Marion, second best	3
same ” best white corn in ear, 1879	5
J. L. Keckley, Marysville, second best	3
F. M. Whipps, Marion, best white corn in ear, 1880	5
Wm. F. Eskert, Elyria, second best	3
F. M. Whipps, Marion, best display pop-corn	2
H. Hymus, Somerset, second best	1
J. L. Keckley, Marysville, best collection corn	5
H. Hymus, Somerset, best bushel white corn-meal	3
F. M. Whipps, Marion, best specimen dried corn	3
A. P. Henderson, Reynoldsburg, best 20 pounds broom-corn	5
F. M. Whipps, Marion, second best	3

Awarding Committee.—A. L. Clapp, Chatham Center; D. V. Larkin, Portsmouth.

CHEESE—FACTORY MADE.

D. L. Pope & Son, Welshfield, best five cheese made in June	5
same ” ” ” July	5
same ” ” ” August	5
same ” best single cheese made at any time	5
same ” best five cheese, for home consumption	10
same ” best and largest display of cheese	Sil. Med.

CHEESE—SWEEPSTAKES.

D. L. Pope & Son, Welsfield, best and largest display of cheese	Gold Medal.
same ” best lot of ten cheese made within ten consecutive days	Silver Medal.

Cheese.—We commend the Schweitzer cheese as a fine, well made article, but being entirely different from American cheese, should have been classified as such in a different department. No comparison can be made between the two for premium.

Awarding Committee.—W. B. Straight, Hudson; D. B. Wagner, Circleville.

BUTTER, BREAD, ETC.

Mrs. Maggie Graham, Reynoldsburg, best lot 10 pounds butter in rolls	$5
Mrs. Mary Maxwell, ” second best	3
Mrs. Maggie Graham, ” best lot 25 pounds, made in May or June	8
Mrs. Mary Maxwell, ” second best	5
same ” best 50 pounds butter made at any time	8
Mrs. Mary Hogan, Columbus, best 3 loaves domestic white bread	3
Mrs. Wm. Renner, ” best 4 loaves bakers' bread	3
Mrs. Mary Hogan, ” best soda biscuit	2
Mrs. J. T. Harris, ” best butter crackers	2

Mrs. Mary Maxwell, Reynoldsburg, best domestic corn bread	$2
same ” best domestic rye bread	2
Mrs. Maggie Graham, ” best domestic brown bread	2
Mrs. Mary Maxwell, ” best domestic Graham bread	2
Miss Clara Bieber, Delaware, best domestic sponge cake	2
Mrs. Mary Maxwell, Reynoldsburg, best domestic raised biscuit	2
Mrs. John Boyer, Circleville, best yeast for domestic use	2
Mrs. Mary Maxwell, Reynoldsburg, best 3 hams (1 cooked)	8
Mrs. Maggie Graham, ” second best	4
Mrs. John Boyer, Circleville, best 6 beef tongues	2
Mrs. Mary Maxwell, Reynoldsburg, best 3 pieces dried beef	3

Awarding Committee—W. J. Rogers, Pittsfield; Mrs. P. J. Lofland, Columbus; I. S. Williams, Newark.

PICKLES, PRESERVES, ETC.

Mrs. John Boyer, Circleville, best canned tomatoes	$2
Mrs. S. W. Park, Hope, ” blackberries	2
same ” ” raspberries	2
Mrs. Mary Maxwell, Reynoldsburg, best canned peaches	2
Mrs. M. A. Rinehart, Marysville, ” pears	2
Mrs. John Boyer, Circleville, ” apples	2
Mrs. Maggie Graham, Reynoldsburg, best canned quinces	2
same “ “ cherries	2
Mrs. S. W. Park, Hope, “ gooseberries	2
Mrs. Henry Bieber, Delaware, “ currants	2
Mrs. L. Trimble, Marion, “ grapes	2
Miss M. A. Rinehart, Delaware, “ plums	2
Mrs. John Boyer, Circleville, “ corn	2
Mrs. J. Arnold, Westerville, “ peas	2
same “ “ beans	2
Mrs. Mary Maxwell, Reynoldsburg, best and largest variety canned fruits	8
Mrs. E. Hock, Marion, “ “ pickles	8
Mrs. J. Arnold, Westerville, “ “ jellies	8
Mrs. J. W. Purdam, Chillicothe, best apple jelly	2
Mrs. Maggie Graham, Reynoldsburg, best currant jelly	2
Mrs. J. Johnson, Marion, best peach jelly	2
Mrs. John Boyer, Circleville, best quince jelly	2
Mrs. L. Miller, Pataskala, best grape jelly	2
Mrs. John Boyer, Circleville, best preserved quinces	2
Mrs. Mary Maxwell, Reynoldsburg, best preserved peaches	2
Mrs. Maggie Graham, “ “ “ pears	2
Mrs. John Boyer, Circleville, “ “ apples	2
Mrs. A. L. Perry, Delaware, “ “ plums	2
Mrs. John Johnson, Marion, “ “ grapes	2
Mrs. John Boyer, Circleville, best tomato catsup	2
Miss Clara L. Stewart, Columbus, best cucumber catsup	2
Mrs. John Boyer, Circleville, best pickled cucumber	2

Mrs. Maggie Graham, Reynoldsburg, best pickled peaches	$2
Mrs. Mary Maxwell, " " tomatoes	2
same " " walnuts	2
Mrs. E. Hock, Marion, " butternuts	2
Mrs. John Boyer, Circleville, " mangoes	2
Mrs. Maxwell, Reynoldsburg, best pickled melons	2
Mrs. E. Hock, Marion, best pickled onions	2
Mrs. Mary Maxwell, Reynoldsburg, best pickled gherkins	2
Mrs. John Boyer, Circleville, best specimens concentrated vegetables	3
Mrs. A. L. Perry, Delaware, best gallon maple syrup	2
Mrs. Mary Maxwell, Reynoldsburg, best half gallon cider vinegar	2
David Jones, Hallsville, best half gallon wine	2

Awarding Committee.—Ed. Hance, Sarah Ann Smith, Ella Morrow, Miss S. Moore.

POTATOES AND OTHER ROOT CROPS.

W. F. Eskert, Elyria, best half bushel Campbell's Late Rose	$3
L. Swickard, Hope, " Peach blow	3
H. Hynus, Somerset, " Snowflake	3
L. Swickard, Hope, " Buckeye	2
same " Early Rose	3
W. F. Eskert, Elyria, " Tioga	2
H. Hymus, Somerset, " Beauty of Hebron	2
W. S. Powell, Elyria, " Early Ohio	2
S. H. Rinehart, Rich Hill, " Early Vermont	2
J. L. Keckley, Marysville, " Burbank's Seedling	2
H. Hymus, Somerset, " Davenport	2
same " " Prolific	2
W. F. Eskert, Elyria, " Triumph	2
W. S. Powell, " " Centennial	2
F. M. Whipps, Marion, " Victor	2
L. Swickard, Hope, best half bushel of any new variety	5
H. Hymus, Somerset, second best half bushel of any new variety	3
J. L. Keckley, Marysville, best ten varieties Irish potatoes	8
F. M. Whipps, Marion, second best ten varieties Irish potatoes	4
H. Hymus, Somerset, best half bushel any variety other than above	3
B. C. Simms, Groveport, best half bushel sweet potatoes	3
F. M. Whipps, Marion, best disply sweet potatoes	5
W. F. Barr, Reynoldsburg, best twelve parsnips	2
L. Swickard, Hope, second best "	1
same " best twelve carrots	2
F. M. Whipps, Marion, second best twelve carrots	1
same " best six long blood beets	2
W. F. Barr, Reynoldsburg, second best six long blood beets	1
M. D. Clark, Elyria, best six turnip beets	2
W. F. Barr, Reynoldsburg, second best six turnip beets	1
L. Swickard, Hope, best six mangel wurzels	2

F. M. Whipps, Marion, second best six mangel wurzels	$1
L. Swickard, Hope, best display of beets	3
F. M. Whipps, Marion, best twelve turnips, table use	2
L. Swickard, Hope, second best twelve turnips, table use	1
J. L. Keckley, Marysville, best peck red onions	2
Ivan Keckley, " second best peck red onions	1
Miss Lizzie Miller, Pataskala, best peck white onions	2
W. S. Eskert, Elyria, second "	1
L. Swickard, Hope, best peck potato onions	2
F. M. Whipps, Marion, second best peck potato onions	1
L. Swickard, Hope, best display of onions	3
F. M. Whipps, Marion, best twelve roots salsify	2
L. Swickard, Hope, second best twelve roots salsify	1

Awarding Committee.—D. C. Richmond, S. Silver.

VEGETABLES.

E. S. Livingston, London, best peck red tomatoes	$2
F. M. Whipps, Marion, second best peck red tomatoes	1
same " best peck purple tomatoes	2
E. S. Livingston, London, second best peck purple tomatoes	1
F. M. Whipps, Marion, best display tomatoes	5
W. F. Barr, Reynoldsburg, best six drum-head cabbages	2
F. M. Whipps, Marion, best six heads flat Dutch cabbage	2
W. F. Barr, Reynoldsburg, second best six heads flat Dutch cabbage	1
F. M. Whipps, Marion, best six heads any late variety	2
same " best half peck peppers	2
W. H. Ortman, Hallsville, second best half peck peppers	1
F. M. Whipps, Marion, best display peppers	3
B. C. Simms, Groveport, best six stalks celery	2
John W. Simms, Groveport, second best six stalks celery	1
L. Swickard, Hope, best three winter crook-neck squashes	2
S. H. Whims, Columbus, best summer squash	2
B. Dickerman, Constantia, second best summer squash	1
S. H. Whims, Columbus, best display squashes	3
F. M. Whipps, Marion, best dozen sweet corn (early)	2
S. H. Whims, Columbus, second best dozen sweet corn (early)	1
W. S. Powell, Elyria, best dozen sweet corn (late)	2
W. H. Ortman, Hallsville, second best dozen sweet corn (late)	1
F. M. Whipps, Marion, best display sweet corn	3
E. S. Livingston, London, best three Gypsey watermelons	2
F. M. Whipps, Marion, best three ice cream watermelons	2
Morgan Brown, Tontogany, best three watermelons any other variety	3
S. H. Whims, Columbus, second best three watermelons any other variety	2
same " best display melons	5
F. M. Whipps, Marion, best display early cucumbers	2
same " best display late cucumbers	2
same " best Lima beans	2

L. Swickard, Hope, second best Lima beans	$1
same ” best kidney bush beans	2
F. W. Barr, Reynoldsburg, second best kidney bush beans	1
same ” best any other variety bush beans	2
B. Deckerman, Constantia, second best any other variety bush beans	1
Samuel Shawd, Kenton, best and greatest variety garden beans	3
A. W. Livingston & Son, Columbus, best half peck garden peas	2
E. S. Livingston, London, second best half peck garden peas	1
F. M. Whipps, Marion, best three purple egg plants	2
same ” best and greatest variety vegetables	10
L. Swickard, Hope, second best and greatest variety vegetables	5

We, your committee, found the display in this department most excellent in variety and quality, and have awarded premiums as marked.

Awarding Committee.—G. S. Innis, I. F. Guther, S. S. Ketchum.

BEES, HONEY, AND APIARIAN SUPPLIES.

S. M. Oldham, Reynoldsburg, best ten pounds honey in comb	$3
Reigel & Drum, Adelphi, second best ten pounds honey in comb	1
same ” best ten pounds extracted honey	3
M. Riser, Columbus, second best ten pounds extracted honey	1
S. M. Oldham, Reynoldsburg, best and largest display honey	10
Reigel & Drum, Adelphi, best sample Italian bees	3
S. M. Oldham, Reynoldsburg, best bee-hive (without bees)	3
J. W. Newlove, Columbus, best honey extractor	2
same ” best bee smoker	1
S. M. Oldham, Reynoldsburg, best sample of comb foundation for surplus boxes	2
same ” ” ” ” brood chambers	2

Awarding Committee.—L. Herrick, Marry Rederram, David Taylor.

SUMMER AND FALL APPLES.

Morey & Benschoten, Sandusky, best six varieties	$5
George Freeman, Tadmore, second best six varieties	3
J. L. Teal, Perrin's Mills, best three varieties	3
J. R. Hurst, Chillicothe, second best three varieties	2
Morey & Benschoten, Sandusky, best three varieties of large	2
Daniel Duer, Millersburg, best three varieties for market	2
J. L. Teal, Perrin's Mills, second best three varieties for market	1
Daniel Duer, Millersburg, best varieties for dessert	2
George Freeman, Tadmore, second best varieties for dessert	1
Morey & Benschoten, Sandusky, best basket (half bushel) six varieties	3
A. M. Gatch & Sons, Milford, second best basket (half bushel) six varieties	2
Morey & Benschoten, Sandusky, best display fifteen varieties	10
George Freeman, Tadmore, second best display fifteen varieties	5

Awarding Committee—G. H. Miller, Levi Buchwalter, M. E. Dresback.

WINTER APPLES.

George Freeman, Tadmore, best ten varieties	$8
Lewis Beazle, Glen Este, second best ten varieties	5
Morey & Benschoten, Sandnsky, best five varieties	5
George Freeman, Tadmore, second best five varieties	3
same " best five plates of large	5
Morey & Benschoten, Sandusky, second best five plates of large	3
Lewis Beazle, Glen Este, best variety dessert	2
Scott & Combs, New Carlisle, second best variety dessert	1
George Freeman, Tadmore, best six varieties for market	8
J. L. Teal, Perrin's Mills, second best six varieties for market	5
Morey & Benschoten, Sandusky, best ten varieties (half bushel)	5
A. M. Gatch & Son, Milford, second best ten varieties (half bushel)	3
Morey & Benschoten, Sandusky, best display of thirty varieties	15
George Freeman, Tadmore, second best display of thirty varieties	8

Awarding Committee.—Jno. A. Warder, Wm. T. Fuller, C. E. Thorne, S. R. Moore.

PLATE APPLES.

George Freeman, Tadmore,	best plate of five	American Summer Pearmain	$2
J. L. Teal, Perrin's Mills,	"	Baldwin	2
Levi Buchwalter, Hallsville,	"	Bellflower	2
Morey & Benschoten, Sandusky,	"	Belmont	2
J. R. Hurst, Chillicothe,	"	Ben Davies	2
A. M. Gatch & Sons, Milford,	"	Clermont	2
Morey & Benschoten, Sandusky,	"	Duchess of Oldenburg	2
same "	"	Fail Pippin	2
Daniel Duer, Millersburg,	"	Fallawater	2
J. R. Hurst, Chillicothe,	"	Fall Wine	2
Morey & Benschoten, Sandusky,	"	Gravenstein	2
S. R. Moore, West Zanesville,	"	Grimes' Golden	2
A. M. Gatch & Sons, Milford,	"	Hubbardston Nonesuch	2
J. R. Hurst, Chillicothe,	"	Jonathan	2
Morey & Benschoten, Sandusky,	"	King of Tompkins County	2
George Freeman, Tadmore,	"	Jeffries	2
same "	"	Northern Spy	2
Daniel Duer, Millersburg,	"	Ohio Nonpareil	2
Morey & Benschoten, Sandusky,	"	Peck's Pleasant	2
Lewis Beazle, Glen Este,	"	Porter	2
J. R. Hurst, Chillicothe,	"	Rambo	2
Morey & Benschoten, Sandusky,	"	Red Canada	2
J. H. Cole, Harlem,	"	Rhode Island Greening	2
George Freeman, Tadmore,	"	Western Beauty	2
Daniel Duer, Millersburg,	"	Rome Beauty	2
J. L. Teal, Parrin's Mills,	"	Roxbury Russet	2
same "	"	Smith's Cider	2
George Freeman, Tadmore,	"	Twenty Ounce	2

J. L. Teal, Perrin's Mills, best plate of five White Pippin	$3
George Freeman, Tadmore, " Stark	2
A. M. Gatch & Sons, Milford, " Benoni	2
George Freeman, Tadmore, " Wagner	2
J. R. Hurst, Chillicothe, " Newtown Spitzenburg	2

Awarding Committee.—Geo. W. Trowbridge, L. B. Pierce, Geo. W. Dean.

PEACHES, QUINCES, AND PLUMS.

Peaches.

Hurst & Hurst, Chillicothe, best six varieties six each	$5
C. H. Gatch, Milford, second best six " "	3
Wm. H. West, Chillicothe, best three " "	3
Hurst & Hurst, Chillicothe, second best three varieties six each	1
N. Ohmer, Dayton, best one variety of six	2
Wm. H. West, Chillicothe, second best one variety of six	1
S. D. Riegel, Adelphi, best new seedling	2
Hurst & Hurst, Chillicothe, best display twelve varieties	10

Quinces.

H. Buchwalter, Hallsville, best twelve orange quinces	$3
David Jones, Hallsville, best twelve pear quinces	3
H. Buchwalter, Hallsville, best peck quinces	3

Plums.

J. L. Teal, Perrin's Mills, best three varieties	$2
George Freeman, Tadmore, second best three varieties	1
Hurst & Hurst, Chillicothe, best plate of twelve specimens	2

Awarding Committee.—G. S. Innis, Geo. W. Dean, A. T. McKelvey, S. G. McBride, G. F. Newton.

COUNTY FRUITS.

Gatch & Sons & J. L. Teal, Milford, best collection of fruits from any county in Ohio (Clermont county)	Diploma and $40
Isaac Freeman, New Carlisle, second best collection of fruits from any county in Ohio (Miami county)	25

Awarding Committee.—N. Ohmer, J. C. Stimps, P. T. Turpin.

GRAPES.

Jacob Linxweiler, Dayton, best ten varieties three bunches each	10
J. L. Teal, Perrin's Mills, best six " "	8
Jacob Linxweiler, Dayton, second best six varieties three bunches each	5
L. A. Ganson, Urbana, best three varieties three bunches each	5
Geo. W. Campbell, Delaware, second best three varieties three bunches each	3
same " best new seedling	3
same " best display of fifteen varieties	10
J. L. Teal, Perrin's Mills, best six bunches Catawba	2
G. F. Newton, Millersburg, " " Concord	2

Geo. W. Campbell, Delaware,	six bunches	Croton	$2
Jacob Linxweiler, Dayton,	“ “	Delaware	2
same “	“ “	Eumelan	2
L. A. Ganson, Urbana,	“ “	Hartford Prolific	2
Isaac Freeman, New Carlisle,	“ “	Iona	2
W. J. Keller, Miamisville,	“ “	Ives	2
Geo. W. Campbell, Delaware,	“ “	Lady	2
Jacob Linxweiler, Dayton,	“ “	Martha	2
J. L. Teal, Perrin's Mills,	“ “	Norton's Virginia	2
Geo. W. Campbell, Delaware,	“ “	Rebecca	2
L. A. Ganson, Urbana,	“ “	Salem	2
Jno. Pfiffner, Delaware,	“ “	Wilder	2
same “	“ “	Warder	2

Awarding Committee.—Chas. Carpenter, Geo. W. Trowbridge, Geo. M. High.

NATIVE WINES.

Paul Smith, Cleveland,	best sample	Catawba	$5
same “	“	Delaware	5
same “	“	Norton	5
same “	“	Ives	5
S. D. Ringel, Adelphi,	“	Concord	5
Paul Smith, Cleveland,	best display pure grape wine (Ohio)		Sil. Med.

Awarding Committee.—F. P. Rempel, Chas. Carpenter, Chas. Walcut, Geo. M. High, Geo. W. Campbell, Geo. W. Trowbridge.

PEARS.

N. Ohmer, Dayton,	best six varieties summer and fall		$8
Geo. Freeman, Tadmore,	second best six varieties summer and fall		5
N. Ohmer, Dayton,	best twelve varieties summer, fall and winter		10
John Poste, Columbus,	second best twelve varieties summer, fall and winter		5
Morey & Benschoten, Sandusky,	best one-half peck	Seckel	3
J. L. Teal, Perrin's Mills,	best one-half peck	Bartlett	3
Lewis Beazle, Glen Este,	best plate five	Bartlett	2
Geo. Freeman, Tadmore,	“	Belle Lucrative	2
same “	“	Beurre Bosc	2
John Poste, Columbus,	“	Beurre Clairgeau	2
N. Ohmer, Dayton,	“	Beurre d'Anjou	2
Geo. Freeman, Tadmore,	“	Beurre Diel	2
J. L. Teal, Perrin's Mills,	“	Columbia	2
N. Ohmer, Dayton,	“	Duchesse d'Angouleme	2
Morrey & Benschoten, Sandusky,	best plate five	Flemish Beauty	2
John Poste, Columbus,	best plate of five	Howell	2
Leo Weltz, Wilmington,	“	Esperen	2
J. J. Nelson, Columbus,	“	Sheldon	2
N. Ohmer, Dayton,	“	Lawrence	2
J. R. Lovejoy, Columbus,	“	Louise Bonne de Jersey	2
N. Ohmer, Dayton,	“	Onandaga	2

Morey & Benschoten, Sandusky, best plate of five Seckel	$2
N. Ohmer, Dayton, best plate of five Vicar of Winkfield	2
same " best plate of large	3
Geo. Freeman, Tadmore, second best plate of large	2
N. Ohmer, Dayton, best six varieties of market	6
J. L. Teal, Perrin's Mills, second best six variety of market	3
Geo. Freeman, Tadmore, best variety of dessert	2
same " best display of twenty varieties	15
Leo Weltz. Wilmington, second best display of twenty varieties	8

Awarding Committee.—Chas. Carpenter, M. A. Wilheling, Cleveland; Geo. W. High, Geo. W. Trowbridge.

FLOWERS AND PLANTS—PROFESSIONAL LIST.

J. F. Sked, Westerville, best collection of plants and finest arrangement	$10
Morris Evans, Columbus, second best collection of plants and finest arrangement	10
J. F. Sked, Westerville, best single specimen	5
same " collection palms	15
same " single plant specimen	5
Morris Evans, Columbus, best collection ferns	15
same " single specimen	5
J. F. Sked, Westerville, best collection variegated plants	15
same " single specimen plants	3
J. B. Romans, Columbus, best collection begonias	8
same " single specimen begonia	2
J. L. Stelzig, " collection cannas	5
same " " ornamental grasses	5
J. F. Sked, Westerville, best single specimen ornamental grasses	2
J. L. Stelzig, Columbus, best specimen single aloes	1
J. F. Sked, Westerville, best collection fancy caladiums	8
same " single specimen	2
same " collection new plants	10
Morris Evans, Columbus, best specimen cactus	3
same " pair vases, living plants	5
E. A. Roth, " six hanging baskets, living plants	6
same " piece of rustic work	5

CUT FLOWERS.

Miss E. L. Grant, Cleveland, best pair hand bouquets	$5
H. S. Mathewman, Xenia, second best pair hand bouqets	3
Miss E. L. Grant, Cleveland, second best pair parlor bouquets	3
Morris Evans, Columbus, best display floral designs	25
H. S. Mathewman, Xenia, "	15
Morris Evans, Columbus, best display table designs	10
Leo Weltz, Wilmington, " dahlias	5

Morris Evans, Columbus, best arranged and largest display cut flowers	$15
Wm. Halley, “ aquarium	10

Awarding Committee.—M. A. Wilhelmy, Cleveland; Mrs. H. C. Grafflin, N. S Townshend, Mrs. E. J. Blount, Sanford Wilson, Wm. McKellar, Sam'l Sked, Geo. W. Campbell.

FLOWERS AND PLANTS—AMATEUR LIST.

Mrs. J. M. Pugh, Columbus, best collection stove and green-house plants	$10
Mrs. N. E. Lovejoy, “ “ twelve varieties	8
Ada Gregory, Marion, best specimen of plants in or out of bloom	5
Mrs. N. E. Lovejoy, Columbus, best collection ten varieties variegated leaf plants	8
Mrs. J. M. Pugh, “ second best collection ten varieties variegated leaf plants	5
Mrs. J. M. Pugh, Columbus, best single specimen	3
Mrs. P. J. Lofland, “ “ collection coleus, ten varieties	5
Mrs. N. E. Lovejoy, “ “ six specimens	3
Mrs. Jos. Bradford, “ “ collection begonias, ten varieties	8
same “ “ six specimens begonias	5
Mrs. J. M. Pugh, “ “ collection aloes and cactus in pots	3
same “ “ six specimens aloes	2
Ada Gregory, “ “ “ cactus	2
Mrs. J. M. Pugh, “ “ collection fuchsias in pots	2
Mrs. Jos. Bradford, “ “ “ geraniums	5
Mrs. N. E. Lovejoy, “ second best collections geraniums	3
same “ best specimen geraniums	2
Mrs. J. M. Pugh, “ “ collection ferns lycopodiums	5
Mrs. N. E. Lovejoy, “ “ “ verbenas in pots	3
same “ “ “ roses in bloom	5
Mrs. J. M. Pugh, “ “ “ plants on trellises	5
Mrs. P. J. Lofland, “ “ six hanging baskets of living plants	5
Mrs. J. M. Pugh, “ second best six hanging baskets of living plants	3

CUT FLOWERS.

Mrs. P. J. Lofland, Columbus, best table design cut flowers	$8
A. L. Perry, Delaware, best collection dahlias, twelve varieties	5
Mrs. J. M. Pugh, Columbus, second best collection dahlias, twelve varieties	3
Mrs. N. E. Lovejoy, Columbus, best collection of roses (named)	3
J. Zirkle, Columbus, best collection verbenas (named)	5
Mrs. N. E. Lovejoy, Columbus, second best collection verbenas (named)	3
Mrs. Jos. Bradford, “ best twelve distinct verbenas (named)	3
Mrs. P. J. Lofland, “ second best twelve distinct verbenas (named)	2
Mrs. Jos. Bradford, “ best collection phloxes (named)	3
Mrs. J. Zirkle, “ “ display asters	3
Mrs. Jos. Bradford, “ “ “ balsams	3
same “ “ “ pansies	3
Mrs. N. E. Lovejoy, “ “ “ geraniums	2

Mrs. N. E. Lovejoy,	Columbus,	best display carnation variety and equal	3
Mrs. Jos. Bradford,	“	“ “ gladiolus	3
Mrs. A. L. Perry,	Delaware,	“ “ coxcombs and amaranths	2
Mrs. Jos. Bradford,	Columbus,	“ “ double zinnias	2
same	“	“ “ cut flowers other than above	5
Mrs. J. M. Pugh,	“	second best display cut flowers other than above	3
Alice A. Tucker,	“	best pair parlor bouquets (12-inches)	3
A. L. Perry,	Delaware,	best collection native flowers (named)	3

Awarding Committee.—M. A. Wilhelmy, N. S. Townshend, Mrs. E. J. Blount, Wm. McKellar, Mrs. H. E. Grafflin, John B. Romans, Geo. W. Campbell, Samuel Sked.

SCULPTURE, ETC.

P. Koch,	Columbus,	best collection insects	$5 and Sil. Med.
O. Davie,	“	“ Ohio birds	5 and Sil. Med.

Awarding Committee.—F. C. Sessions, J. N. Anderson, W. B. Page.

PHILOSOPHICAL INSTRUMENTS, ETC.

Chas. M. Evans,	Cincinnati,	best artificial limb	Diploma.
A. B. Cady,	Delaware,	best specimen dentistry	Diploma.

MUSICAL INSTRUMENTS.

T. H. Schneider,	Columbus,	best grand pianoforte	$30
same	“	“ upright “	15
Jos. Harris,	“	“ square “	15
same	“	“ reed organ	Sil. Med.
same	“	“ reed and pipe organ	$15 and Sil. Med.
T. H. Schneider,	“	“ violin	$3
same	“	“ flute	3
same	“	“ clarionet	3
same	“	“ collection musical instruments	Sil. Med.

Awarding Committee.—Oliver Wiggins, Lillie C. Darst, Lydia Linton, Hattie B. Miller, Estelle Cleveland.

DRAWINGS, PAINTINGS, ETC.

Professional List.

Phil. Clover,	Columbus,	best life-size portrait from sittings	$10
J. J. Barber,	“	“ portrait of horse, bull, or cow	10
same	“	“ specimen oil painting, original	15
same	“	“ landscape from nature in oil, by Ohio artist	10
same	“	“ Ohio landscape in oil, by Ohio artist	10
same	“	“ exhibition of paintings in oil	25
E. F. Miller,	“	“ specimen in water colors, original	15
Miss Sarah E. Harper,	Lancaster,	best landscape from nature, in water	10
E. F. Miller,	Columbus,	best exhibition of paintings, water color	20
G. C. Urlin,	“	“ crayon drawing	5

Amateur List.

Miss Carrie P. Smith, Reynoldsburg, best landscape from nature, in oil	$5
Lizzie Miller, Pataskala, best fruit or flower pot, in oil	5
Mrs. L. P. Coman, Hanover, best landscape from nature, water colors	5
same “ “ fruit or flower pot, water color	5
same “ “ exhibition of paintings in water colors	10
John W. Piersche, Columbus, best crayon drawing	5
L. M. Baker, Columbus, best specimen photographs, colored in water colors, Sil. Med. or	10
Elliott & Armstead, Columbus, best specimen photographs, in India ink	Sil. Med or 10
same “ “ 2 dozen carte visites of children	5
same “ “ “ “ adults	5
same “ “ 1 dozen cabinet photographs	Sil. Med. or 10

Photographs and Miscellaneous.

L. M. Baker, Columbus, photo colored in water colors	Sil. Med. or 10
Elliott & Armstead, Columbus, photo colored in India ink	Sil. Med. or 10
same “ two dozen carte visites of children	5
same “ “ adults	3
same “ one dozen cabinet photos	Sil. Med. or 10
L. M. Baker, “ “ large plain photograph	Sil. Med.
Elliott & Armstead, “ “ display photographs	20
Miss K. A. Mathew, “ “ lithograph	Dip.
McClenahan & Woodruff, Columbus, best specimen penmanship	Dip.
same “ “ “ ornamental penmanship	Dip.
Lizzie Miller, Pataskala, best pencil drawing	Dip.
J. C. Beard, Columbus, best fancy sign painting	Dip.

Awarding Committee.—F. C. Sessions, J. N. Anderson, H. C. Chittenden, W. B. Page.

PROTESTS.

SPRINGFIELD, OHIO, *September* 9, 1880.

Ohio State Board of Agriculture, Columbus:

GENTLEMEN: We are very credibly informed that the awarding committee on reapers, mowers, and automatic grain binding machinery, at the late Ohio State Fair, was not such a committee as was contemplated by your Board, and not such a committee as could act after the information they received from the superintendent of the machinery department, Mr. Charles Smith. One member, at least, of the said committee is an agent for a competing machine exhibited on the grounds, and from such cause was disqualified, not being a person exercising free and impartial judgment in the examination and award.

We therefore offer our protest on the awards made by the committee on haying and harvesting machines and tools, and ask that the premiums be revoked, and the action of committee be rescinded.

We will furnish, at the earliest possible moment, sworn statements of competent parties in proof of the assertions here made, and which we believe will clearly satisfy the mind of the Board that the committee was not one that could consistently act.

Respectfully,

WHITELEY, FASSLER & KELLY.

The Board ordered the protest referred to Mr. Charles Smith, the member in charge of the machinery department, with instructions to make a thorough investigation, carefully examine the statements presented, allowing all parties interested to be heard, and report the result os his investigation at the next meeting of the Board, premiums on articles examined by the committee referred to in the protest to be withheld until the report of the investigation.

There being no premiums offered for reaping or mowing machines, the protest by Messrs. Whitely, Fassler & Kelly applies more particularly to "automatic grain binders." The facts in the case are as follows: At the hour for examination of this class of machinery but one member of the regularly appointed committee reported for duty, Mr. D. M. Hayes, of Washington C. H., Ohio; it therefore became necessary for Mr. Charles Smith, the member in charge of the department, to appoint two additional members on the committee. Mr. Lee R. Randall and A. J. Bennett, of Mason, Warren county, Ohio, being recommended as competent judges of the class of machinery to be passed upon, were invited into the office of member in charge, and the question, "Are you in any manner interested in the manufacture or sale of the implements about to be examined?" was propounded. The answer being that they were in no manner interested, they were duly appointed to serve on the committee on hay and harvesting machines, when with Mr. D. M. Hayes, the regularly appointed committeeman, they proceeded to an examination of the machinery entered in the class, the committee at the close of its labors returning the entry book to the member in charge.

Numerous statements and affidavits have been presented to the Board, substantiating the matter set forth by the protest of Messrs. Whiteley, Fassler & Kelly, among which are the following:

LEBANON, OHIO, *September* 10, 1880.

To the President and Members of the Ohio State Board of Agriculture:

DEAR SIRS: Being one of the secretaries at your late Fair, Mr. Lee Randall, of the firm of Cox & Randall, of this county, came into the office and asked me what the Board allowed committeemen for services. I told him I did not know, but said for him to report to the member in charge. I then asked him what he was committeeman on, and he said on reapers and mowers. I then asked him what machine the committee gave the premium to, and he said to the Osborn binder. This was about all the conversation we had, but I said, "How came you to serve as a committeeman when you sold the Osborn binder?" He said that there was some kicking, but he was not ruled off, but understood there would be a protest.

GEO. W. CAREY,
Sec'y of Warren County Fair and Ass't Sec'y of Ohio State Fair.

State of Ohio, Warren County, ss.:

Sworn to and subscribed in my presence this 10th day of September, A. D. 1880.

EDWARD WARNICK,
Notary Public, Warren county, Ohio.

State of Ohio, Warren County, ss.:

Personally appeared Daniel Pauley, of Lebanon, Warren county, Ohio, who deposeth and says that he had conversation with Lee R. Randall, a member of the firm of Cox & Randall, of Mason, Ohio, agents for the Osborn reapers, mowers, and binders, in which he stated that he and A. J. Bennett, an agent for the above firm, were members of the committee which awarded premiums on reapers, mowers, and binders at the Ohio State Fair, held at Columbus, Ohio, August 30, 31, and September 1, 2, 3, 1880, and that they were appointed by the member of the board having charge of that department of said Fair.

DANIEL PAULEY.

Sworn to and subscribed in my presence this 10th day of September, A. D. 1880.

EDWARD WARNICK,
Notary Public, Warren county, Ohio.

State of Ohio, Warren County, ss.:

Personally appeared Andrew Atkinson, of Lebanon, Warren county, Ohio, who deposeth and says that Lee R. Randall, of the firm of Cox & Randall, of Mason, Ohio, who are agents for the Osborn binder, acknowledged to me that he was a member of the committee which awarded premiums on reapers, mowers, and binders at the Ohio State Fair, held at Columbus, August 30, 31, and September 1, 2, and 3, 1880, and that he also said that D. M. Hayes, of Washington C. H., was also a member of that committee, and that they were appointed by the Superintendent of the Agricultural Department of said Fair.

Andrew Atkinson.

Sworn to and subscribed before me this 10th day of September, A. D. 1880.

Edward Warnick,
Notary Public, Warren county, Ohio.

State of Ohio, Warren County, ss.:

Personally appeared Chas. E. Sausser, of Lebanon, Warren county, Ohio, who deposeth and says that he had a conversation with Lee R. Randall, one of the firm of Cox & Randall, agents for the sale of the Osborn reapers, mowers, and binders, in which he states that he and his agent, A. J. Bennett, were members of the committee which awarded premiums on reapers, mowers, and binders at the Ohio State Fair, held at Columbus, Ohio, August 30, 31, and September 1, 2, and 3, 1880, and that they were appointed by the member of said Board having charge of that department of said Fair.

Chas. E. Sausser.

Sworn to and subscribed before me this 10th day of September, A. D. 1880.

Edward Warnick,
Notary Public, Warren county, Ohio.

After the receipt of the protest, and statements verifying the same, a communication was addressed to D. M. Osborn & Co., the firm whom the committee awarded the premium on automatic grain binder, to which the following reply has been received:

Cleveland, Ohio, *October* 10, 1880.

Jas. W. Fleming, Esq., *Ohio State Board of Agriculture, Columbus, Ohio:*

Dear Sir: We were surprised to receive your communication of the 14th, saying that the premium awarded our grain binder, at the late Ohio State Fair, had been protested by Messrs. Whiteley, Fassler & Kelly, the grounds being that two of the awarding committee were interested in the Osborn binder as agents.

We had our Mr. Hawes, who had charge of our machines at your Fair, come in, in order that we might talk the matter over with him so that we might be able to answer you definitely, he having seen Mr. Smith at the Fair, and being acquainted with him, and, as you requested, has made as full a report as possible to him, at Marion.

As far as we know, there is nothing in the award that is not according to justice, as the committee was appointed by you, and served to the best of their ability, and we think quite justly, in giving us the premium.

We wish to say, however, that as far as the affidavit is concerned, that two members of the committee were our agents, is not so, and that we are prepared, if called upon to do so, to make affidavit to the contrary.

Very truly yours,

D. M. OSBORN & CO.

BY A. G. BEARDSLEY, JR.

Letters were also addressed to Lee R. Randall and A. J. Bennett, of Mason, Warren county, Ohio. They were questioned as to their interest est in the manufacture or sale of the Osborn binder, but to these letters *neither of the gentlemen have made reply.*

The members of the Board give their best efforts to secure competent and impartial committees in each of its departments. They regret that the foregoing evidence seems to show that Lee R. Randall and A. J. Bennett imposed upon the member in charge, and acted upon this committee, upon which they should have had no place. Since the recording of the protest above referred to, the following has been received from the Walter A. Wood Co.:

CHICAGO, ILLINOIS, *September* 21, 1880.

W. I. CHAMBERLAIN, ESQ., *Secretary Ohio State Board of Agriculture, Columbus, Ohio:*

DEAR SIR: The Walter A. Wood and Reaping Machine Company hereby enters, for the consideration and action of your honorable body, its protest against the award made at the Ohio State Fair, held September 1st, 2d and 3d, by the Committee on "Hay and Harvesting Machinery and Tools", on twine self-binding machines for harvesting and binding grain, to the twine self-binder exhibited at said Fair by D. M. Osborn & Co., for the reasons hereinafter stated, as reported to this company.

The Awarding Committee above mentioned, consisting of L. R. Randall, A. J. Hayes, and A. J. Bennett, two-thirds—to wit, two members—were at the time said award was made pecuniarily interested in the success of the said Osborn twine self-binder as against all exhibits of like character, in obtaining said award; one of said members, namely, L. R. Randall, being a member of the firm of Cox & Randall, of Mason, Warren county, Ohio, local agents for the sale of said Osborn twine self-binder, and another one of said members, A. J. Bennett, being canvasser and salesman for said firm of Cox & Randall, agents as aforesaid, it is therefore submitted that this award, made by a committee of three members to the machine, in the sale of which two of such members were pecuniarily interested, is so far liable to the charge of improper prejudice and unfair mental bias as to justify this protest and call or the prompt setting aside of such award by your board.

Hoping that the Ohio State Board of Agriculture will accept our protest and revise and rescind the action of said committee in awarding the first prize to said Osborn twine self-binder, I have the honor to be

Your very obedient servant,

WALTER A. WOOD, *President.*
Per E. N. VALENTINE, *Manager.*

COLUMBUS, *September* 9. 1880.

Hon. State Board of Agriculture:

GENTLEMEN: The Committee on Stoves, Castings, etc., having awarded first premium to Mr. C. Emrich on a pretended school-room ventilating stove, which was fraudulently obtained in violation of article IV of general instructions to committee, I hereby enter my earnest protest against the premium being paid, for the following reasons, viz.:

1st. Because Mr. Emrich had no school-room ventilating stove on exhibition at the State Fair, it being simply a plain, common shop stove.

2d. Because the entry was fraudulently made. His agent made the same with the knowledge that Mr. Emrich does not manufacture, and does not pretend to have school-room ventilating stoves for sale, or to have had one on exhibition at the late State Fair.

3d. That he did willfully take advantage of the ignorance of the committee on the subject, and boasted after the committee had left that "he was smart enough to mislead the members and get the red card."

For the foregoing reasons I enter my protest and ask its careful consideration by the Board.

Respectfully submitted,

J. J. VOGELGESANG,
Manufacturer and Exhibiter of School-room Ventilating Stoves.

The above protest was referred to Mr. R. H. Hayman, the member of the Board in charge of Third Department, with instructions to investigate and report at the next regular meeting, the premium to be withheld until the report be made.

To the Hon. Ohio State Board of Agriculture:

GENTLEMEN: I hereby protest against the award of second premium on ram two years old and over, entered in book 25, as not coming under the rule of your Board, relative to certificate of shearing.

H. D. HUBBARD.

The member in charge, Mr. W. N. Cowden, having received the proper certificate, the action of the committee was sustained.

Mr. W. N. Cowden, the member in charge of sheep department, who was instructed to investigate the evidences of fraud, asserted in regard to the sheep exhibited by T. B. Bennington & Son at the late fair, and which, according to rule, should have been shorn not earlier than the 1st of April, writes as follows:

QUAKER CITY, OHIO, *October* 16, 1880.

W. I. CHAMBERLAIN, *Secretary Ohio State Board Agriculture, Columbus, Ohio:*

DEAR SIR: In obedience to my appointment by Board at last meeting to investigate in the matter of fraudulent shearing of the sheep shown by T. B. Bennington, of Laporte, Lorain county, I have to report that I have now in my possession the affidavit of the party who sheared the sheep, and he testifies that he sheared them on the 8th and 9th days of January (thirteen head to be exhibited at fairs in 1880.) This will certainly justify the Board in withholding premiums. When I get the evidence of the reliability of the affiant, will send papers to you.

Yours in haste,

W. N. COWDEN.

COMMENDED ARTICLES.

FIRST DEPARTMENT.

F. A. Mendenhall, Woodington, slate colored turkeys.
same " white Holland turkeys.

SECOND DEPARTMENT.

Frey, Sheckler & Hower, Bucyrus, clay crusher.
Barnard & Leas Manufacturing Co., Moline, Illinois, corn cleaner.
same " warehouse separator.
Revolving Scraper Co., Columbus, dump scraper.
same " surface grader.
same " road scraper.
G. Diemer & Co., Columbus, road plow.
N. E. Lovejoy, Columbus, wood-workers' vise.
J. W. Whitaker, Troy, fruit and paint ladder
same " combined bob holder and truck.
L. B. Miller, Delaware, carriage and entrance gate.
W. G. McComan, Colerain, horse power and hoisting machine combined.
J. C. Bidwell, Pittsburg, Pa., combined plow and pulverizing harrow.
same " four wheel carriage plow.
Chambers, Boring & Quillman, Decatur, Illinois, check rower.
Stewart & Park, Mt. Victory, tile mill attachment.
same " adjustable paddle.

J. Zangmister, Buthann, Double B. corn plow.
Philip Rausch, Marysville, apparatus for watering stock.
Howarth & Sons, Decatur, Illinois, wire check rower.
same " " "
same " " rope "
David Lied, Columbus, sewing-machine treadle.
Beedle & Kelly, Troy, combined corn planter and drill.
same " corn planter and check rower.
same " two-horse corn drill.
same " display of corn planters.
Atchison & McLaughlin, London, little giant portable derrick.
Hoosier Drill Co., Richmond, Indiana, one-horse corn drill, with fertilizer attachment.
E. Smith, Bro. & Co., Sidney, Slusser's excavator.
Allen & Loney, Mt. Vernon, sheller and grinder combined.
J. L. Harrison, Columbus, apparatus other than pump for raising water.
Chandler & Taylor, Indianapolis, Indiana, brick machine.
South Bend Chilled Plow Co , South Bend, Indiana, three-horse sulky plow, G. P.
B. D. Buford & Co., Rock Island, Illinois, improvement in plows.

THIRD DEPARTMENT.

C. M. Ambrose, Columbus, clothes-wringer.
Steele Bros., Salem, combined clothes line stretcher.
Amor Vapor Stove Co., Cleveland, vapor stove and burners.

FOURTH DEPARTMENT.

Ada Gregory, Marion, linen embroidered pin-cushion.
same " tidy on honeycomb canvass.
same " pair mats.
same " pillow, sheet, and bolster shams.
Halm, Bellows & Butler, Columbus, marble board, decorated.
John Hayes, Columbus, fair bridle leather.
J. F. Earhart & Co., Columbus, specimen of posters and hangers.
Lizzie Miller, Pataskala, agricultural wreath.
Miss Inez Hill, Columbus, corset cover.
C. Siebert, " cases of guns.
same " case of fishing tackle.
H. C. McClelland & Co., Columbus, one case of bibles.
William Turner, North Fairfield, scrap bag.
same " slipper case.
same " worsted elbow toilet cushion.
same " child's skirt.
same " infant's skirt.
same " crochet edging.

William Turner, North Fairfield, patch-work ottoman cover.
same " worsted comforter.
same " infant's socks.
same " fancy apron.
same " glove case.
same " handkerchief case.
same " cape cover.
Halm, Bellows & Butler, Columbus, fancy stool.
same " fire screen.
same " cornices.
same " cornice poles.

FIFTH DEPARTMENT.

Mrs. William Renner, Columbus, display of baker's bread and cakes.
Thorley Food Co, Chicago, Illinois, display of Thorley food.

SIXTH DEPARTMENT.

Frank Koch, Columbus, collection United States stamps.
Minnie Gregg, Marion, neck-tie, hand painting.
J. M. Johnson, Columbus, specimen visiting cards.
J. J. H. Condit, " specimen inlaid work.
International Enlarging Co., Norwalk, pastil crayon portrait.
Dr. M. Lawrence, Columbus, rue rectified wine (medicinal).
Elliott & Armstead, " crayon portrait.
M. A. Stevenson, Sandusky, novelty car seat and head rest.
same " galvanic pen.
same " lightning plaiter.

REPORTS ON THE LIVE STOCK EXHIBITS.

REPORT UPON THE HORSE EXHIBIT.

BY FRANK A. MASON.

To the State Board of Agriculture:

As Secretary of your Committee of Awards on Horses, I have endeavored to carry out the instructions of the Attending member of your Board governing that Committee. I was ready to weigh and measure, and give an accurate description of each animal entered, but the Committee, finally, thought it only necessary to report upon the animals awarded premiums, and that it was neeedless to either weigh or measure them.

The number exhibited was not as large as I have seen at your Fairs for the past five years, but for quality, size, style, color, speed, etc., were equal, if not superior, to any former exhibitions.

THOROUGHBREDS.

Stallions four Years Old and Over.—In this class there were three entries, all splendid specimens of the highest type of horse flesh, showing intelligence and much judgment towards improving this class of horses. The winner of first premium was Mr. John Reber, of Lancaster, for his imported horse, "Kyrle Daly," bred by Mr. Joseph Lyons, Queens county, Ireland. He is blood bay, sixteen hands high, low in his withers, heavy body, large bone; is a very handsome, substantial horse. He was sired by "Artillery;" first dam, "Colleen Rhue," etc. He has just returned from Kentucky, where he was used this season for service.

The second premium was awarded to another remarkably fine horse, "Worcester." He is an elegant bay stallion, sired by "Concord;" dam, "Glenluce" by imported "Glencoe." He is fifteen and three quarters hands high, was shown in his racing form, and is quite a perfect horse of this class; good body, short, strong legs, and is well muscled. He is owned by Messrs. Noyes & Irvin, of Marion, Ohio.

Stallions Three Years Old.—There was only one horse shown in this class, and that was "Pilgrim," belonging to Mr. John Dysinger, of Amanda, Ohio. He stands over fifteen hands high; stylish, well muscled, with good legs and body, and was awarded first premium.

There were no entries for two year old stallions, nor were there any for one year old stallions in this class.

Mares Four Years Old and Over.—In this class there were five very fine mares, and the first premium was awarded to Mr. J. P. Bidleman, of Columbus, for his b.

mare, "Bonnie Ford" by imported "Hurrah;" dam, "Bonnie Lass" by imported "Scotland." She was in racing form, and has fine style, good body, legs, muscle, and bone.

The second premium was awarded to the chestnut mare, "Bonnie Kate" by "Bonnie Scotland;" dam, "Young Fashion" by imported "Monarch." Her form, bone, muscle, and size were all good, and, with her appearance and pedigree, is unexceptionably fine, as a brood mare. Bred and owned by Mr. John Reber, of Lancaster.

Mares Three Years Old.—A fine lot appeared in this class, and the first premium was awarded to Mr. J. P. Bidleman, of Columbus, for his mare, "Louisa Guynne," a fine bay mare (bred by Baldwin Gwynne, Esq., of Columbus, being remarkably well bred) by imported "Hurrah;" first dam, "Nellie Gwynne" by "Bonnie Scotland;" second dam, "Grey Alice" by "Chorister;" third dam, "Alice Carneal" (Lexington dam). Has good style, good body, and excellent limbs.

The second premium was awarded to Mr. Mose Thomas, of Xenia, Ohio, for his chestnut mare, "Mollie Thomas," bred by the late Henry Blandy, Esq., from his great winning horse, "Tom Boston." She is highly bred on the dam's side; good body, muscles, and limbs.

No two year old mares.

No one year old filly.

Brood Mare with Foal by her Side.—There was but one entry in this class, and the first premium was awarded to Mr. John Reber, of Lancaster, for his chestnut mare, "Emily Peyton," a large, elegant mare; style, bone, legs, muscle, body, and action all very good. She was sired by Lexington; her dam was Sally Roper by imported Albion; grand dam, Lallah Rooke by imported Glencoe. The foal at her side was a superb colt by imported Kyrle Daly, showing the substance of that horse.

ROADSTERS.

Stallions Four Years Old and Over.—In this class there was ten very fine horses brought on the track; ages from five to fifteen years. They were all over fifteen hands high; all handsome, stylish drivers, and nearly all very fast, several able to trot in about two minutes and thirty seconds, and not a blemished horse shown. Mr. John Reber's horse, Abdalbrino, was selected for the first premium. He is a very rich bay, sixteen hands high, eight years old, weighing one thousand one hundred pounds, with splendid action, good body, excellent limbs, strong and well muscled, trots inside of 2:30. He was sired by Mr. Alexander's horse, Woodford Mambrino; which horse died young, having recorded to him a mile in 2:21¼. Abdalbrino's dam was by Alexander's Abdallah, and is full brother to "Princeps," the sire of Trinket, and other very fast colts.

The second premium was awarded to Mr. A. G. Pratt, South Charleston, Ohio, for a splendid bay stallion, five years old, by Clark's Mohawk, Jr., dam by Flying Cloud. He is large; style and form good; strong legs and well muscled; trots fast, and pure gaited.

The third premium was awarded to Henry Ropp, of Springfield, Ohio, for a blood bay stallion, sired by a son of Old Independence, and his dam was sired by a grandson of Old Independence. This horse is of good style, good substance, well muscled, and good bone. All the others that went to the stables without ribbons felt as if they deserved them, and so did your judges, upon this class, think them meritorious.

Roadster Class for Three Year Olds.—Several very fine three year old colts appeared for this premium. The first premium was awarded to Mr. John Turner, of Pleasant Corners, Ohio, for his chestnut horse "Ned," by Hall's Mohawk, his dam by "Blanco." Quite a good colt; good bone, good body, and good way of going.

Second premium was awarded to C. H. Harlow, Hudson, Ohio, for his chestnut horse Cashier; sired by "Sunbeam"; dam by sorrel "Tom."

For best stallion two years old and under three, there was but one entry. The first premium was awarded to Mr. John F. Miller, of Richmond, Indiana, for chestnut stallion "Richmond," by Blue Bell; dam was a thoroughbred mare. Has excellent limbs, good style, good body and action. Appeared in harness, and behaved well.

Roadster Mares.—There were thirteen entries in four year old and over roadster mares. Eleven fine mares appeared, all large and finely bred, all trotted evenly and nicely, rendering it no easy matter to make the first selection. The first premium was given to Mr. John Stitt, of Zanesville, Ohio, for his chestnut mare "Nellie Stitt," by Dolson's Scythian; dam, a Kentucky bred pacing mare. Nellie Stitt is sixteen hands high, trots fast, and looks like a thoroughbred; fine, large bone, well muscled, good body and action, and quite stylish.

The second premium was awarded to Mr. H. M. Bugher, of Glendale, Ohio, for his mare Mary Belmont, by Mr. Alexander's Belmont, her dam by Pilot, Jr. This was also a fine mare, of good style, action, bone, and muscle.

The third premium was awarded to Mr. N. W. Perrill, of Groveport, for his bay mare "Daisy Perrill;" of good size and weight, strong legs, well muscled, and like the stallions in this class; the balance were all good, and some exhibited considerable speed.

Roadster Three Year Old Mares.—Only two put in an appearance. The first premium was awarded to Mr. Wm. German, of Shadesville, Ohio, for his chestnut filly by Allendale, he by Almont; filly's dam by a thoroughbred. His bone, body, style, and action are all good.

Second premium was awarded to Albert Josephs, of Pataskala, for his gray mare Pilot Maid; sired by Bayard; her dam by Frank Forrester. This is a nice filly, of good bone, body, muscle, and legs.

Roadster Mares with Foal by Side.—First premium was awarded to Elam May, of Alum Creek, Ohio, for his roan mare Nellie May, by Spotted Arabian; dam by an Eclipse horse. Her foal was very nice, by Mohawk Eagle.

GENERAL PURPOSE STALLIONS.

Four Year Olds and Over.—This class had a large number of entries, and not a horse in the lot but what was examined carefully for choice of premiums. Judges finally decided to give first premium to Mr. D. P. Larkins, of Selma, Ohio, for his chestnut stallion Telegraph, Jr., sixteen hands high, eight years old, by a thoroughbred, out of "Jane Hazard," whose pedigree could not be ascertained. The stallion was of much substance; good style, flat leg, plenty of bone and muscle, round body, and a good gaited horse.

Second premium was awarded to George Stevens, of Plain City, for his gray stallion Colonel Moore. He trots fast, is a horse of good bone, clean limbs; style and form good.

Third premium was given to Mr. C. H. Harlow, of Hudson, for his chestnut horse Dick. This horse has speed, with good bone, muscle, style, and had all the requisites for general purposes.

Stallions Three Years Old.—Only four horses appeared in this class, all good colors and fine size. First premium was awarded to Rattler Boy, sixteen hands high, a very showy bay colt owned by D. H. Walcutt, Poplar, Ohio. This colt's bone good and strong; good muscled and good body; shows good trotting action.

Second premium was awarded to I. O. Smith, Harrisburg, Ohio, for his colt, Brown Lion, sixteen hands high; sired by Blanco; dam, a Black Hawk mare; good size, bone and muscle; awkward, but the making of a good horse.

Stallions Two Years Old.—Four colts appeared, and were all very large, nice colts. First premium was awarded to Mr. John Dresback, of Circleville, Ohio, for his colt Robin Hood, fifteen and three-fourth hands high, by Mambrino Hambletonian, and dam by Hall's Mohawk; second dam by Paul Jones. This is a good colt in all respects.

Second premium to John Slagle, of West Jefferson, for his brown colt, fifteen hands one inch high; sired by Tomahawk, dam by Hiatoga. His body, legs, style, and action good.

GENERAL PURPOSE MARES.

Four Years Old and Over.—Four good mares put in an appearance, and the first premium was awarded to T. B. Vance, of Camp Chase, Ohio, for his mare Bay Kit, ten years old, by Blanco; good style, good bone and muscle, and a strong going mare.

Second premium to Thomas Sweet, of Hamilton, for "Polly," a very nice mare for this class. Her bone, muscles, and general appearance are good.

Third premium to C. G. Brown, Circleville, Ohio, for gray mare Mohawk; five years old; clean limbs; good body, with a strong gait while trotting.

Three Year Olds.—Three mares appeared in this class. First premium was awarded to Mr. J. Penn, Dublin, Ohio, for Minnie, fifteen hands high, good bone and muscle, and good appearance generally; the second premium to bay mare Sallie, fifteen hands high, good muscle, good bone; action and style good; owned by J. Penn, Dublin, Ohio.

Brood Mare with Foal by Side.—Two mares appeared. First premium to J. B. Stewart, of Flint, Ohio, for a large, good mare, with good colt, good bone, good muscle, and a good brood mare, from appearance of colt.

Second premium to Jas. Plymire, of Sabina. Mare about the same as the first premium mare, but colt not so good.

DRAFT STALLIONS.

Four Years Old and Over.—Six very heavy horses appeared; all good, and of good bone and muscle; of various breeds, Clyde and Belgium mixed, Norman and Clyde full bred. First premium was awarded to a very fine, large brown stallion, six years old, pure Clydesdale, bred by Mathew Meena, Esq., Footna Green, Stirling, Scotland. ' Stirlingshire Champion" belongs to Smith Bros., of Mt. Gilead, Ohio. He is dapple brown, weighing 1,900 pounds, and was sired by "Donald Dinna." His dam was "Rosa," a taker of many prizes; she was sired by the celebrated "Lothian Tom." This immensely strong stallion possesses all the requisites in bone and muscle, finish, and make-up generally, to constitute what he is, a first-class draft horse. He has a good back and body, legs short, very stout, and clean, good feet, and extraordinary action for so large a horse.

Second premium was awarded to Cal. Bates, of Falmouth, Indiana, for his stallion "France," a very large, elegant gray horse; splendid head, neck, back, and limbs, well ribbed out, and a fine, quick mover on short, powerful legs; broad, with immense bone, and very stylish for this class of horses.

Third premium was awarded to Mr. David Fisher, of Goderich, Ontario, for his extra-fine, large horse, "French Lion." He is an exceedingly strong horse; a splendid back, body and legs short, very stout and clean. Not so much action as the other two that took premiums over him, and style not so good.

Draft Stallions Three Years Old.—First premium was awarded to John Lloyd, of Hilliard, Ohio, for his horse "Young Hepburn." He was large, well-muscled, good bone, good limbs and feet.

Second premium to the same gentleman for a very fine young horse; good action, good back, bone, limbs, and feet all good.

Third premium to John T. Handley, of Reynoldsburg, for his horse "Duke;" large, good back, well-ribbed, good limbs and feet.

Draft Stallions Two Years Old.—Three colts appeared in this class. First premium was awarded to Cal. Bates, of Falmouth, Indiana, for his colt "Jake", a good type of this class of animals; heavy-boned, good style and action.

Second premium to Jacob Fisher, of Goderich, Ontario, for his colt "King of Dublin." This was also a good two year old; good all over.

Draft Stallions One Year Old.—First premium to Cal. Bates, of Falmouth, Ind., for colt "Diamond;" stout, smooth, and active; will make a good horse; bone large; very muscular and active.

Second premium to Richard Jerman, of Hilliard, Ohio, for a very good colt; good back, good limbs and bone, good carriage and action.

Draft Mares Four Years Old and Over.—The mares that appeared in this class were all large and heavy, and made an excellent show. First premium was awarded to Cal. Bates, of Falmouth, Indiana, for his large and handsomely made mare "Josephine." She is dappled grey, over sixteen hands, broad back and quarters, fine looking, large bone, smooth limbs, good feet, and very active, with good, sweeping trot.

The second premium was awarded to Mr. George Lawrence, of Marion, for

"Clyde," a good type of that breed, with good head, neck, and back, good limbs and feet, active and handy.

Third premium was awarded to Cal. Bates, of Falmouth, Indiana, for "Blanche;" also a good mare, and well up in good points; active, and with good feet and limbs.

Mares Three Years Old.—First premium was awarded to Cal. Bates, of Falmouth, Ind., for "Belle," a large, smooth, heavy colt, active, and clean-limbed, with good feet.

Second premium to Isaac T. Beemer, of Sunbury, for his mare, "Queen." This was also a fine mare of her age, pressing Mr. Bates closely for first premium. She had good limbs, good action, good back, quite muscular, and quick in movement.

Mares Two Years Old.—First premium was awarded to Cal. Bates, Falmouth, Ind., for "Maud;" a very good filly, promising for a good mare; well-ribbed, good back; legs and feet good.

Second premium to Robert Price, of Bloomfield, Ohio, for "Beck;" a good colt; has a round, strong body, good style, good quarters, good legs and feet.

Yearling Fillies.—First premium was awarded Thomas Jerman, of Hilliard, Ohio, for a very good filly.

Draft Brood Mares with Foal by Side—In this class the first premium was awarded to Mr. R. K. Reese, of Hilliard, Ohio, for a very good mare and colt.

Second premium to J. L. Bannon, of Canal Winchester, Ohio. The colt by the side of this mare was very good.

GELDINGS AND MARES FOR LIGHT HARNESS.

There were twenty-one entries in this class, all good, sound animals, aged from five to ten years, all good sizes, and of good color.

The first premium was awarded to "Nicodemus," handled by Mr. James Alexander, of Columbus; is a good bay horse by Wild Wagoner; good body and bone; speedy, pleasant driver.

Second premium was awarded to Messrs. Caskey & Albaugh, of Circleville, Ohio, for "Thorn," a very handsome and good moving animal, good body, limbs, and feet, trotting out good and square. Many other faster horses were in this class and perhaps very much more valuable, but all had places for adding toe-weights, and seemed to lose that good square gait a roadster should possess, without such incumbrances.

SADDLE HORSES.

There were five entries in this class, and five appeared for competition, all doing well, and the first premium was awarded to Mr. Thomas Sweet, of Hamilton, Ohio, for his gelding, "Bay Jim." He had all the gaits requisite for a good saddle horse, and was well worthy of the premium.

Second prize was awarded to Mr. M. W. Perrill, of Groveport, for another very good saddle horse.

MATCHED HORSES AND MARES.

Pair of Coach Geldings and Mares.—The first premium was awarded . Thomas Sweet, of Hamilton, Ohio, for a very good pair of coach geldings, sixteen hands, both sound; good mares.

Second premium was awarded to Stephen Carey, of Hilliard, Ohio. Style and action as a coach team ordinary.

Farm or Draft Mares or Geldings.—The first premium was awarded to Cal. Bates, for the gray and brown mares mentioned before in heavy draft mares.

Second premium, Richard Jones, of Hilliard, Ohio, for quite a nice, heavy pair of mares.

Geldings and Mares for Light Harness.—There were several good double teams in this class, all showing well. The first premium was awarded to Mr. William Scott, of Darbyville, for Minnie and Josie; a good team; sound, clean limbs; good style and action.

Second premium to David Nims, of Bellevue, Ohio. Also a nice pair; smooth, sound, with good action and style, and uniformity of temper.

SWEEPSTAKES.

Thoroughbred and Roadster Stallions, with Five Colts.—There were two entries, and the prize was awarded to Mr. William Sinnock, of Massillon, Ohio, who took it with "Buckeye Chief" by Toronto Chief, he by Royal George. He is a beautiful coal-black stallion, very stylish, good body and bone, fast and pure gait. The colts were all good, moving well, uniform in shape and size, all good bones and feet, smooth and stylish.

For Best Stallion of any Age or Breed other than Draft.—First premium was awarded to Mr. John Reber, of Lancaster, for "Kyrle Daly," the imported horse already described in the first premium of thoroughbred stallions.

Mare any Age or Breed other than Draft.—There were several nice animals shown for this premium, and the prize was awarded to Mr. John Reber, of Lancaster, for his chestnut mare, "Bonnie Kate" by Bonnie Scotland; dam, Young Fashion; she also taking second prize in thoroughbred class for mares at this exhibition.

Draft Stallions with Five Colts.—The entries were all good, and the first prize was awarded to Cal. Bates, of Falmouth, Ind., for his fine, large horse, "France," and five very fine, large colts; these have been described in the class for draft horses. Mr. Bates has shown a large and very sound lot of animals, without a scratch or blemish upon any, and in this class all were large, good boned, good muscles, clean limbs, with good style and action.

Draft Stallions of any Age.—First premium was awarded to Smith Bros., of Mt. Gilead, Ohio, for his horse "Stirlingshire Champion." He is dapple brown, weighing 1,900 pounds, was sired by "Donald Dinnie," is now six years old, and very active. He was bred in Stirlingshire, Scotland, and from a prize family on both sides in that country. (See first premium in draft stallions four years old and over, which was awarded to this horse.)

Draft Mares of any Age.—The prize was awarded to Cal. Bates, of Falmouth, Indiana, for his large and splendid draft mare "Josephine." She is dappled gray, active, sound and very smooth. Has been described in draft class.

Your judges in all these classes were: John Monahan, Springfield; George Zielly, Massillon; F. A. Mason, Zanesville.

SUMMARY OF THE RACES.—RUNNERS.

Mile Dash—For Purse of $200.

Dan Brun, Oregon, Harry Lightfoot	–
J. P. Bidleman, Columbus, b. m. Louisa Gwynne	2
Noyes & Irvine, Marion, s. m. Belle of Nelson	5
J. A. Johnson, Columbus, b. s. L. B. Sprague	3
Chas. Symond, Cynthiana, Ky., c. g. Rambler	4
H. J. Woodford, East Randolph, N. Y., c. s. Bill Bird	6
P. Daily, Bradford, Pa., b. s. Keno	1

TROTTING.

3:30 *Class—Mile Heats—Three in Five—For Purse of* $300.

G. B. Morse, New London, Ned Foster	5	di	–
D. P. Larkin, South Charleston, s. g. Baby Boy	3	5	di
Jno. Stitt, Zanesville, s. m. Nellie Stitt	7	di	–
J. H. Sherman, Zanesville, b. g. Verus	di	–	–
J. H. Starr, Alvada, bk. m. Fairy	9	4	di
J. W. Russell, Columbus, b. m. Ethle R	8	6	di
L. Minshall, London, b. m. Mollie M	dr	–	–
L. L. Scott, Uhrichsville, b. g. Luster Boy	6	2	2
Wm. Hill, Uhrichsville, b. m. Ollie	dr	–	–
P. W. Brown, Circleville, c. g. Jim Gardner	4	di	–
A. D. Burnside, Alexandria, b. m. Lizzie B	–	–	–
A. L. Cook, N. Lawrence, b. g. Farmer Boy	–	–	–
Wm. Greeno, Chillicothe, g. g. Eagle Plume	2	3	3
H. M. Bugher, Glendale, br. m. Sue Gundy	dr	–	–
W. H. Wilson, Cynthiana, Ky., Hambrino Belle	1	1	1
B. W. Stevenson, Clyde, g. s. Fleetfoot Hunter	di	–	–

RUNNERS.

1¼ *Mile Dash—For Purse of* $200.

Dan Brun, Oregon, Harry Lightfoot	–
J. W. Hayes, Washington C. H., c. m. Mollie	–
Noyes & Irvine, Marion, s. m. Belle of Nelson	1
Jos. Hamerick, Rochester, N. Y., b. g. Bill Dillon	3
J. P. Bidleman, Columbus, b. m. Bonnie Ford	–
H. C. Woodford, Randolph, N. Y., s. s. Proctor	–
P. Daily, Bradford, Pa., b. s. Keno	2

FREE FOR ALL—TROTTING STALLIONS.

One Mile Heats—Three in Five—For Purse of $300.

G. W. Voorhis, Parina, Mich., bk. s. Black Cloud	2	1	1	1
John Hines, Minerva, bk. s. Nigger Doctor	5	5	3	5
D. R. Horn, Glenville, b. s. Abdallah Boy	1	2	2	2
W. H. Wilson, Cynthiana, Ky., b. s. Indianapolis	3	3	4	4
W. W. Richardson, Everett, ch. s. Sunshine	4	4	5	3

TWO-FORTY CLASS—TROTTERS.

One Mile Heats—Three in Five—For Purse of $400.

H. J. Ritter, Tippecanoe City, Harry Patchen	3	4	2	2	3
J. B. McVay, Kirkersville, b. g. Joseph	1	1	4	di	–
H. K. Huntington, South Charleston, b. s. Happy Traveler	dr	–	–	–	–
A. R. Melendy, Rogersville, Tenn., d. g. Billy King	di	–	–	–	–
G. B. Morse, New London, c. s. American Boy	dr	–	–	–	–
G. W. Snyder & Co., Earlville, Ill , b. s. Executor	2	2	5	3	2
H. M. Bugher, Glendale, ch. m. Mary Belmont	5	5	3	4	4
W. H. Wilson, Cynthiana, Ky., br. m. Hambrino Belle	4	3	1	1	1

RUNNERS.

One Mile Heats—Two in Three—For Purse of $300.

Dan Brun, Oregon, Harry Lightfoot	–	–	–
P. Daily, Bradford, Pa., b. s. Keno	1	4	1
Chas. Symonds, Cynthiana, Ky., s. g. Rambler	5	di	–
Noyes & Irvine, Marion, c. m. Belle of Nelson	4	1	2
Joe Hamerick, Rochester, N. Y., Bill Dillon	3	3	–
J. P. Bidleman, Columbus, b. m. Louisa Gwynne	2	2	–

THREE MINUTE CLASS TROTTERS.

One Mile Heats—Three in Five—For Purse of $300.

D. P. Larkin, South Charleston, s. g. Baby Boy	3	9	5	5
C. C. Williams, Lancaster, g. g. Hecter	7	5	8	10
J. H. Sherman, Zanesville, bk. g. Verus	10	10	10	9
J. H. Starr, Alvada, bk. m. Fairy	9	11	dis	–
J. B. McVey, Kirkersville, b. g. Joseph	2	1	1	1
John Reber, Lancaster, br. m. Lady Richmond	6	3	3	3
J. W. Russell, Columbus, O., b. g. Columbus	1	2	6	8
C. A. Redding, Westerville, b. s. Hiatoga Jim	11	7	7	6
L. Minshall, London, b. m. Mollie M	–	–	–	–
L. L. Scott, Uhrichsville, b. g. Luster Boy	5	4	2	2
T. Maccy, Chillicothe, b. m. Rumps	4	6	4	4

D. O. Heiskill, South Charleston, br. m. Quaker Girl	dr	–	–	–
A. D. Burnside, Alexandria, b. m. Lizzie B	–	–	–	–
H. M. Bugher, Glendale, rn. m. Mollie Shaw	dr	–	–	–
W. H. Wilson, Cynthiana, Ky., g. g. Hawthorn	8	8	9	7

TWO-THIRTY CLASS TROTTERS.

One Mile Heat—Three in Five—For Purse of $400.

L. B. Harris, Upper Sandusky, b. g. Bay Dick	3	1	2	3	3	3
D. P. Larkin, Selma, b. g. Charley Ross	dis	–	–	–	–	–
John Call, Cleveland, s. g. Headlight	4	3	3	4	4	–
R. D. Dean, Columbus, br. g. Outlaw	dis	–	–	–	–	–
John Hines, Minerva, b. m. Elzie Groff	2	4	1	1	2	1
W. H. Wilson, Cynthiana, Ky., w. m. Sannie G	1	2	4	2	1	2

RUNNING.

One Mile Dash For Beaten Horses.

J. P. Bidleman, Columbus, b. m. Bonnie Ford	1
C. Symands, Cynthiana, Ky., c. g. Rambler	–
H. J. Woodford, Randolph, N. Y., s. s. Proctor	2
C. Wilcox, Randolph, N. Y., c. s. Bill Bird	–
John Desinger, Amanda, b. s. Pilgrim	3

REPORT UPON THE CATTLE EXHIBIT.

BY LORENZO D. HAGERTY.

Your reporter to the Awarding Committee of Cattle, at the thirty-first annual fair, respectfully submits the following report:

To my recollection, this cattle exhibit, in point of excellence was never surpassed, nor in numbers equalled, by any previous show held by the Board. All of the breeds were represented by highly meritorious animals, many of them having been prize winners in the old country as well as in the States. All the circumstances and conditions, with the weather necessary for the pleasure of visitors and exhibiters, and an advantageous show of the stock, were most propitious.

The entries numbered three hundred and fifty-eight, of the most creditable kind, and showed clearly that this high art in agriculture was keeping pace with the progress of the country; and, indeed, with our diversity of soils, so productive of both corn and grass, can there be successful agriculture, without due attention is paid to the cattle interests? Any good breed, whatsoever race, is better than what vulgarly known as the "Scrub."

Your State Board have wisely offered awards to only those breeds of well-ascertained purity of blood and extraction, for only in these can the desirable qualities be transmitted and established in any herd. And since our increase of population, and our lands becoming more valuable, the farmer can only afford to breed that stock which will bring to him the most rapid returns in the way of profit.

The cattle interest has, within the past few years, grown to be an important factor in the way of exports and in developing the western country; in fact, from "time whereof the memory of man runneth not to the contrary," have they been recognized as a most potent element of value. It is said "Abram was rich in cattle." "In infant communities, an individual's wealth was measured by the size and number of his herds, and cattle for a long period formed, as they still do, among many central African tribes, the favorite medium of exchange between the nations."

"After the introduction of metal coin into Ancient Greece the former method of exchange was commemorated by stamping the image of a bullock on the new money, while the same custom has left its mark on the language of Europe, as is seen in the Latin word 'pecunia,' and the English 'pecuniary,' derived from 'pecus,' cattle, and the value of cattle in ancient times is further shown by the bull figuring among the signs of the zodiac."

"It is also shown in the veneration which has always been paid cattle by the Hindus, according to whose sacred legends they were the first animals created by the three Divinities, who were directed by the Supreme Diety to furnish the earth with animated things, and in the important part it was made to play in Greek and Roman mythology."

Whatever may be handed down to us, either by tradition or history, showing the respect paid them, or relative value allowed them, only increases the already high estimation we now have of them.

Since mention in this report is made of the early history of the bovine race, it will be of interest to notice the first introduction of them into this country. It was a short time previous to 1609 that the first importation was made into this country, which were landed at the James River Plantation, in Virginia. The two following years over one hundred head of cows were brought into the James River colony. These cattle were guarded with the most sedulous care, and the most stringent law enacted for their preservation, that they should multiply. I quote the law from an old authority forbidding their destruction: "Pain of death to the principal; burning of the band and cropping the ears of the accessory, and a sound whipping for the concealer of the facts."

The first importation into New England was made by Governor Winslow, and arrived at Plymouth in the year 1622. Several other importations were made during the years from 1622 to 1633, among which was that made by Capt. John Mason, of a number of large yellow cattle from Denmark. There is but little doubt that our common or native stock trace to these importations, and that at that time these cattle were inferior in size, and of no uniformity. Importations of this sort were not infrequent up to the date of 1783, when Mr. Goff, with a company of two other gentlemen from Maryland, imported some very fine animals (for that day), and which appear to have gone into the hands of Mathew Patton, of Virginia, in about the year 1794, removed to Kentucky with the stock. Subsequently to this, or from 1790 to 1796, Mr. Millar imported into Maryland and into New York a number of animals, which did much to improve the cattle of the country.

Other importations were made, but were less frequent, up to the year 1817, when Col. Sanders imported the well known "Seventeens," descendants from whom are found all over the country. Near this date Henry Clay imported some Herefords.

But the importation that has done most to distribute valuable cattle all over this land is credited to the Ohio Company—organized in the Scioto Valley, with Felix Renick as the agent, with Edwin J. Harness and Josiah Renick as assistants; this occurred in 1834.

These agents proceeded to England, and examined all the cattle of all the breeds. They were not restricted as to the price they should pay or as to what breed they should select from. As to what they did, and for general information, I will quote a letter written to J. S. Reynolds, by Felix Renick, some time after his return:

"After examining all the stocks of the most celebrated breeders of all the breeds, and getting all the information we could obtain in regard to the usefulness of each particular breed, and their adaptation to our soil and climate, we were clearly of the opinion that the breed known as the Short Horn would be much the most desirable and profitable for our purpose, for the following reasons: 1. Their growth is quite equal, if not superior, to any other breed. 2. Their weight of fine flesh in proportion to bone and coarse flesh. 3. Their great aptitude to fatten at any age, and to almost any extent the owner may choose. And in the fourth place, they are considered in England, and we believe, to be better milkers than either Herefords, Devons, or Long Horns. * * * * * * * * *

I quote this letter not because of any favoritism, but to show the first interests manifested in supplying this country with an improved breed cattle. Previous to this were other importations of less importa ce, of which probably mention should be made, but space will not permit, and besides the digression already from the duty assigned me will not be tolerated longer in this Report.

The Short Horn exhibit was represented by the herds of Hon. Geo. M. Bedford, Paris, Kentucky; Wing and Thompson, Bement, Illinois; F. P. Modlin, New Castle, Indiana; R. Hawley, Detroit, Michigan; Hon. T. C. Jones and C. Hills, Delaware, Ohio; J. C. Stevens, Kenton, Ohio; Calvin Dodge & Son, New Lyme, Ohio; David Selsor, London, Ohio; George W. Gregg, Circleville, Ohio; D. D. Richards, Newark, Ohio; Jas. R. Anderson, Anderson, Ohio; Thos. W. Herron, Freeland, Ohio; R. C. Moulton, Woodstock, Ohio; John S. Steel, Anderson, Ohio; Copper & McFarland, Mt Vernon, Ohio; Anderson & Price, Anderson, Ohio; Geo. J. Hagerty & Sons, Hanover, Ohio.

For the best bull 3 years and over there were thirteen entries. It is rarely, if ever, a finer ring of aged bulls are brought together in competition. After the animals were placed in their proper position Mr. R. Baker invited the owners of them into the Grand Stand. The judges consisted of Messrs. Charles Clark, Jesse Hageler, and Thos. F. Joy. There was a large crowd of spectators, and considerable speculation as to where the prizes would go. After some examination the first prize was awarded to London Duke of Greenwood, owned by David Selsor. London Duke is a good one, stands well on his feet, exceedingly good in the fore flank and under line, his head and neck very fine, but masculine enough, a clean front, and in quality and style superb; the second prize was awarded to Duke Dunmore, owned by Jones & Hills, of Delaware. The Duke is a good animal, in quality very superior; the third prize was awarded to Springdale Airdrie 2d, owned by Jas. R. Anderson. Among the many good animals in the ring was the bull "Beaconsfield." He had just turned his third autumn, and by reason of his elegant style, fine head and neck, limbs well put under him, upper and lower lines perfect, in color snow white, with an orange colored skin, won the admiration from a majority of the bystanders, and was placed by them second, or certainly third, in the ring.

In the two year old class there were only four entries. Prince Royal owned by Calvin Dodge & Son, was awarded first prize. Prince Royal is a very fine two year old, well filled, and nearly matured. The second prize was awarded to Duke Clifton 3d, owned by David Selsor. Third prize to Prize Boy, owned by John S. Steel.

In the yearling ring there were twelve entries. Veto, owned by R. C. Moulton, was awarded first prize. Veto is a promising young bull, and had some fine points rarely excelled even by older animals. Second prize was awarded to Governor Foster, owned by George W. Gregg. The Governor is another promising calf. The third prize was awarded to 11th Duke of Sharon, owned by Mr. Bedford, of Kentucky.

In the calf ring there were fifteen entries. Bell Duke, owned by David Selsor, won first prize. Count of Lebanon 2d was awarded second prize; owned by Calvin Dodge & Son. The third prize was awarded to a calf owned by John S. Steel.

The ring of cows four years old and over was a magnificent show. There were fifteen entries, and the competition exceedingly close. The first prize was awarded to Mayflower. (By the way, this is the third successive year that Mayflower has held this position.) She is owned by James R. Anderson. The second prize was awarded to Greenwood Louan, owned by David Selsor, and the third to Nellie Sharon 2d, owned by John S. Steel.

In the three year and under four ring there were ten entries, all good ones. Mr. Selsor's Greenwood Louan 34th took the first honor; Mr. George M. Bedford's 56th Duchess of Goodness second, and Mr. Selsor's Profitable 14th third. This was the most closely contested ring of the whole show, as will be seen later. The second prize heifer of Mr. Bedford's was decided by different judges to be the best of any age or breed in the sweepstakes class.

The two and under three year old ring was filled by thirteen entries, all good ones. First prize to James R. Anderson's Jennie May; second to Lass of Plainsview 5th, owned by George W. Gregg; third to George M. Bedford's 68th Duchess of Goodness.

The yearling ring was represented by sixteen very fine ones. The first and second prizes were awarded to George W. Gregg's Belle of Walnut 5th and Modjeska. The third prize went to Ella Seyfert, owned by James R. Anderson.

In the calf ring were twelve entries, all of them good ones. First prize was awarded to Gracie, owned by John S. Steel; second to Boston Belle 10th, owned by J. C. Stevens; third to Mame Sharon, the property of George W. Gregg.

The show of Devons, a breed so beautiful in style, color, and uniformity, w s very fine; and it is due this pure type of cattle to say they possess a uniformity unrivaled by any other breed, have every indication of rapid feeders, and for milk are the equal of any of the small breeds, and unquestionably are the best cattle in the world for working purposes. With these admirable qualities, if a little more weight and early maturity could be added to them, they would equal, if not excel, any breed in the world.

There were fifty-three entries in this class. Among the exhibiters were E. C. Bliss, of Westfield, New York; John Blake, Whipple, Ohio; Daniel Torn, Rix Mills, Ohio; D. J. Whitmore, Casstown, Ohio; J. J Scarff & Son, New Carlisle, Ohio, and J. T. McPherson, Cambridge, Ohio.

In the ring for the best bull three years and over there were four entries. The committee, which consisted of Dill Weigand, C. Caswell, and A. V. Rudd, awarded first prize to Barefoot, who was a fine specimen of the breed; was of good weight; fine style; quality first-class; a good, broad escutcheon, and an exceedingly fine, tapering tail. Barefoot was owned by D. J. Whitmore. Second prize was awarded to Joe, owned by Daniel Torn.

In the two year old ring were four good ones. First prize went to King George, owned by J. J. Scarff & Son; second prize to Breastworks, owned by John Blake.

There were but two yearlings. First prize was awarded to Frank, owned by John Blake; second to D. J. Whitmore's Elyria 2d.

In the calf ring there were nine entries, all good ones. First prize was awarded to D. J. Whitmore's Leroy; second to Plowboy, owned by Daniel Torn.

In the cow ring of three years and over there were twelve entries. First prize was awarded to J. J. Scarff & Son's Laura 2d; second to Kitty Clover, owned by D. J. Whitmore; Third to Maggie, owned by J. J. Scarff & Son.

Two year old and under three. First prize went to Ada, owned by Daniel Torn; second to Effie, owned by D. J. Whitmore; the third to Lulu, owned by John Blake.

One year and under two. John Blake's Lady Miller won first prize; second was awarded to Nelly, owned by J. J. Scarff & Son; third was awarded to Maud, owned by T. J. McPherson.

In the heifer calf ring the competition was close. Betsy Baker 2d was awarded first prize; second prize to Missouri, owned by D. J. Whitmore; third prize to Synthia, owned by E. C. Bliss.

The Hereford cattle were not well represented in numbers, there being only one exhibiter, and he with only a few cattle, but very good ones; and it is a matter of surprise that a cattle so valuable as the Herefords are not more plentiful.

In the class of bulls, three years and over, there was but one entry, exhibited by G. & F. Parsons, which was Lord Raymond. There were no other bulls entered.

In the cow class, three years and over, G. & F. Parsons' Easter, was awarded first and Flora second prize.

Two Years and Under Three.—One entry, by G. & F. Parsons.

Yearlings.—One entry, by G & F. Parsons.

Calves.—Two entries, by G. & F. Parsons. First and second premiums.

JERSEY, GUERNSEY, AND ALDERNEY.

These breeds or varieties are named together for the reason they came from the same locality, Channel Islands of Britain near the coast of France, and are of common origin, but have been raised and bred by gentlemen of fine tastes and fortune, from whose treatment they have attained peculiar characteristics, among which are the fine flavor of their milk and butter, which is not excelled, if equaled, by any other breed; but this is their chief merit. Their anatomy being particularly angular, does not furnish that fine flesh which grows in the choicest parts of the carcass. They are diminutive in size, and for this reason and the prime quality of their milk and butter, it is considered quite the thing for city gentlemen and gentlemen of means to have them grazing in lawns near their residences.

Among the exhibiters were the Ohio State University, Columbus, Ohio; J. W Davis, Columbus, Ohio; David Taylor & Co., Taylor's Station, Ohio; J. J. Scarff & Son, New Carlisle, Ohio; C. Bordwell, Cambridge, Ohio; W. L Gardner, Norwalk, Ohio; Pinney & Co., Worthington, Ohio; W. V. Decker, Groveport, Ohio; and Hoover & Co., Columbus, Ohio.

Bulls Three Years and Over.—There were seven entries, all fine types of the breed, and the Committee, Messrs. Geo. Bryant, Seth Gordon, and D J. Whitmore, were at somewhat of a loss to know what to do, as the animals compared so equally. Finally, the first award was voted to Tom. McGrevey, owned by Mr. Gardner; second to Crown Prince, owned by J. J. Scarf & Son.

Mr. Pinney had the only two year old bull, which was awarded first prize.

The yearling ring had five competitors. Starlight, owned by Mr. Decker, was awarded first prize; and Mercury, of Maple Grove, owned by Mr. Gardner, second.

Calves.—Taylor & Co. were awarded first and second prizes. There were nine in the ring.

Cows Three Years and Over.—There were fifteen entries. The first prize was awarded to Mr. Bordwell's Warren Duchess; second to Hoover & Co.'s Queen of the Farm.

Two Years and Under Three.—Mr. Gardner's Bull Blue was awarded first prize, nd a heifer owned by Pinney & Co. second. There were sixteen entries in this class.

In the yearling class Hoover & Co.'s fine, imported Phyllis took first prize; second to Princess Imperial, owned by Mr. Bordwell.

Sixteen calves came in to have judgment passed upon them. At this age these cattle are very beautiful—their mild, bright eyes, gazelle-like appearance, yet so docile, make them very attractive. First prize to Taylor & Co.'s calf; second to an imported calf owned by Hoover & Co.

AYRSHIRES.

The origin of the Ayrshire cattle is a matter of dispute, but from what can be gained by tradition and history we are led to believe that the cross was made from the Scotch Kylo cow of Scotland, and the Shorthorn bull from the North of England, and from this cultivated into their present condition. They are purely a milking breed, and are highly esteemed for the large quantity they produce. There were only two exhibiters, Mr. W. L. Mallow, of New Holland, Ohio, and Mr. A. J. Wilson, of Grafton, Ohio.

Best Bull Three Years Old and Over.—Mr. Wilson's Forester was awarded first prize, and Mr. Mallow's Handsome Laddie second.

No two year old entries.

Two yearling entries. Duke, owned by Mr. Mallow, first, and Scotch Lad, owned by Mr. Wilson, second prize.

Mr. Wilson was awarded first and second prizes on calves; also, first and second on cows, and first on Dairy Maid, a two year old; first and second on yearlings; first and second on heifer calves.

HOLSTEINS OR HOLLANDERS.

The Holstein is the most recent of the milking breeds imported into this country, and were introduced about eighteen years ago from Holland. They are large in size, being nearly equal in bulk and weight to the Shorthorn. They are good dairy cattle, but are made up very coarsely, but time may develop an improvement. Those exhibited were very creditable animals, many of them recent importations. The exhibiters were Arthur Underwood, of Addison, Michigan; W. H. Smith, of New Carlisle, Ohio; and W. L. Gardner. of Norwalk, Ohio.

Bulls Two Years and Over.—Burgomaster; almost good enough to be a Shorthorn, took first honor. He is owned by Mr. Gardner.

Mr. Smith's Country Gentleman, second.

Mr. Gardner exhibited the only yearling. He was a good one; was awarded first prize. Mr. Gardner showed the only calf. First prize.

In the cow class, a cow of Mr. Gardner's was awarded first prize. She was a fine animal—imported.

Mr. Underwood's cow, second prize. Mr. Underwood's two year old heifer was awarded first prize, and Mr. Smith's second.

Mr. Gardner exhibited the only calf, by the way, a good one. First prize.

Angus or Galloways.—Mr. Anderson DeWitt, of Washington C. H., was the only exhibiter, and showed Margrette, two years old, and a yearling heifer. Both were awarded first prizes. They were creditable animals.

DAIRY STOCK.

Best milking cow of any age.—There was but one entry, that of A. J. Wilson's cow; was awarded first premium.

Best butter cow of any age.—One entry, that of cow belonging to W. J. Rodgers, of Pittsfield.

Verified statements as to the date of calving, manner of feeding, weight of milk, and per cent. of butter produced in ten consecutive days, the first test to be made for the first ten days of June, and the second between the 10th and 20th days of August, were filed with the Secretary, but your reporter at this time is unable to furnish them, and desires to say that the above requirements do not have the effect to bring out a large competition, and believes that the test should be made from the general appearance of the animals, all the milking points considered, with a sample of the milk and butter. A large number of dairymen do not have the facilities, and if they have, will not go to the trouble of filling all the requirements exacted by the rules.

WORK OXEN AND STEERS

Three years and over.—First prize was awarded to David Postle, of Camp Chase, on a yoke of superior cattle. Second prize to W. H. Hoover, of Ashville.

Oxen under three years were represented by one entry; owned by F. P. Cline, Ashville. First premium.

FAT CATTLE.

Three years and over.—Mr. Postle, of Camp Chase, exhibited two head; Calvin Dodge & Son, of New Lyme, four head; and D. D. Richards, of Newark, two head. This was a grand show, nearly all of them shorthorns, and varied in weight from 1,800 to 2,145 pounds. The first prize went to D. D Richard's "Tomboy," a very ripe, even steer. Second prize to equally as good a steer, with excellent qualities, owned by Mr. Dodge.

Steers under two years.—There were three entries. Mr. Waddle's "Dave" took first prize, and "Governor Trimble," owned by Wing & Thompson, was awarded second prize.

Best fat heifer of any class or breed.—There was but one entry, that of Mr. Waddle's "Lucy," a Shorthorn, 1,255 days old; weight, 1,835 pounds. This heifer excelled anything on exhibition as a fat animal. Awarded first prize.

SWEEPSTAKES.

Breeder's Herd.—This prize is considered by the breeder to be the most valuable of all the prizes offered. Owned and bred has a great deal of significance, for in this ring animals can not be purchased that have been fitted for the professional showman, but it is an exhibition of judicious and careful breeding, and the winner of the Breeder's Herd Prize at the Ohio State Fair may justly feel proud of his achievement. There were six herds in competition.

Mr. Bedford has his herd headed by the fine bull "36½ Duke of Goodness." Mr. Selsor's "Duke Clifton 3d" headed his herd. Mr. C. Hill's was headed by "3d Grand Baron." Mr. Steel's, by "Prize Boy." C. Dodge & Son, by "Prince Royal," and Mr. Anderson's, by "Springdale Airdrie 2d."

Messrs. J. H. Pickrell and Abner Strawn, of Illinois, and D. A. Curtis, of Mich., made up the awarding committee.

The competition was close and exciting, and after a most careful examination the red ribbon was tied on the Kentucky herd, owned by Mr. Bedford.

Breeding bull, with five of his get, not less than six months old.—To be awarded this prize is considered to be another high appreciation of a breeding bull.

Here is furnished the best method of bringing before the public the true value of a sire.

Mr. Anderson's "Springdale Airdrie 2d," Mr. Gregg's "Mazurka Judge," Geo. J. Hagerty & Son's "Baron," Mr. C. Hill's "Duke Dunmore," and C. Dodge & Son's "Royal Britton," were the competitors. The competition was close, but resulted in favor of "Springdale Airdrie 2d," owned by Mr. Anderson.

Three Cows with Calf at Foot.—There were three entries, by Mr. E. C. Bliss, of New York, Mr. C. Hills, and Mr. Steel. This was a creditable show. Mr. Steel's cows received first premium.

Six head young stock under two years, owned and bred by exhibiter.—Geo. J. Haggerty & Sons, Mr. Steel, Geo. W. Gregg, Mr. Bedford, and Mr. C. Hills were the exhibiters. The competition here was exceedingly close, but ended in favor of Mr. Gregg's six very beautiful animals, five heifers and a bull.

Exhibiter's Herd.—There were but two entries, that of Modlin & Bro., of Indiana, and Mr. Selsor's. The latter was awarded first prize.

Bull of any Age or Class.—This was a grand ring. Those animals of any age, that had received any sort of favor from the hands of the committees in the different classes, were here, under the management of a practical groom, who was not forgetful to make the points of excellence in the animal under his charge conspicuous to the committee, but all in great fairness. Mr. Selsor's London Duke of Greenwood carried off the honor, to the full satisfaction of all present. There were eleven entries in this class.

Cow of any Age or Class.—Eight splendid cows, all over two years, with the exception of Mr. Gregg's Belle of Walnut 5th, a yearling. In this ring were Mr. Anderson's prize animal, Mayflower, Mr. Steel's Nelly Sharon 2d, Mr. Bedford's 56th, 65th, and 68th Duchess of Goodness, David Selsor's Profitable 9th, Mr. Gregg's 11th Duchess of Loamland, and the heifer above mentioned. In point of excellence these animals were nearly equal. The 56th Duchess of Goodness was awarded the honor of being the best thing on the ground of her sex. It will be remembered this is a three year old, and was awarded second premium in her class by another committee. We regret very much to learn of the death of this splendid young cow, which occurred quite recently.

Devon and Hereford Herds.—There were four entries in this class—Messrs. Blake, Scarff & Son, Whitmore and Parsons. The Devon herd, owned by Scarff & Son, won the first prize.

Ayrshires, Jerseys and Holsteins.—There were five entries here, each breed represented by very superior animals. Mr. Gardner's Holstein herd carried off the honors.

Cow with Calf at Foot.—Four entries, confined to the above classes. Hoover & Co., was awarded first prize on a beautiful Jersey, with calf by her side.

Your reporter acknowledges his indebtedness to Mr Baker, Member in Charge, and to the different committees, for many courtesies.

REPORT UPON THE SHEEP EXHIBIT.

BY J. C. STEVENS.

As your reporter for the sheep department at the Ohio State Fair, held in the city of Columbus from August 30 to September 3, 1880, inclusive, I herewith submit my report:

Being conscious of my inability to do this branch of the exhibition that service that its great magnitude demands, I fear to commence the task; for every intelligent farmer knows, that of all the live stock of this country, in point of usefulness sheep rank second to none, affording as they do both food and raiment wherewith man is to be fed and clothed. It may be justly claimed for them that they are king of all domestic live animals. No more delicious and nutritious meat is afforded in the market than the carcass of the sheep. The fleece it yearly yields furnishes the very best and cheapest clothing, aside from furnishing employment for innumerable numbers of people in its manipulation, thereby strengthening and building up every other industry in the land. While your reporter may have witnessed more, he never saw a better display of sheep at an Ohio State Fair; and one very encouraging feature of the display was, they were nearly all bred and owned in Ohio—which, at no distant day will rank first as a sheep-breeding as it now does as a wool-growing State. There is no reason why this should not be the case, having, as we do, a mild, healthy climate; all the grains and grasses are grown in Ohio, in great abundance, to develop the carcass and alike grow the very best, and all the varieties of wool demanded by the American manufacturer.

On Tuesday, at 10 o'clock A.M., the committee commenced its work in Book 27, Downs. The following were exhibiters in this class: G. J. Hagerty & Son, S. H. Todd, J. J. Dodge & Son, T. B. Bennington, and Anderson & Price.

Rams Two Years Old and Over.—First prize went to T. B. Bennington, second to S. H. Todd.

Rams Under Two Years Old.—Ten entries. J. J. Dodge & Son took the first premium, and T. B. Bennington the second.

Ram Lambs.—Four entries. T. B. Bennington took the first, and S. H. Todd second premium.

est Pen of Three Ewes Over Two Years Old.—Six entries. T. B. Bennington took first, and Anderson & Price second premium.

Best Pen of Three Ewes Under Two Years Old.—Five entries. T B. Bennington took first, and S. H. Todd second premium.

Best Pen of Three Ewe Lambs.—Five entries. T. B. Bennington took first, and S. H. Todd second premium.

FAT SHEEP OF ANY CLASS.

Best Pen Three Fat Wethers.—Two entries. G. J. Hagerty & Son took first and B. Waddle second premium.

Best Single Fat Wether.—Two entries. B. Waddle took the first premium.

In Book 29½, sweepstakes on Downs, best flock of ram and five ewes, three entries, Anderson & Price took the prize.

In the display of Downs none were exhibited except Southdowns and Shropshire Downs. The latter having greater size and a larger staple of wool gave them the advantage in the ring. It is questionable whether the two breeds should be compelled to compete. Both were admirably represented by very perfect individuals. Mr. Geo. M. Bedford, of Paris, Kentucky, remarked that he never saw a more perfect Southdown than some of those exhibited by Mr. G. J. Haggerty & Son. The entire display was excellent.

LEICESTERS.

Tuesday afternoon the committee examined the sheep as entered in Book 26.

Best Ram Two Years Old and Over.—But one entry. D. W. Proctor took first premium.

Best Ram Under Two Years Old.—But one entry. S. Fairchilds took the first premium.

Best Ram Lamb.—Two entries. D. W. Proctor took the first, S. Fairchilds second premium.

Best Pen of Three Ewes Two Years Old and Over.—One entry. D. W. Proctor took first premium.

Best Pen of Three Ewes Two Years Old and Under.—Two entries. D. W. Proctor took first, and S. Fairchilds took second premium.

Best Pen Three Ewe Lambs.—Two entries. D. W. Proctor took first, and S. Fairchilds second premium.

Entry Book No. 25, Long Wools. Sheep entered in this Book were examined on Thursday; none on exhibition in this book except Cotswolds, and a grander display of this breed of sheep was never made in Ohio.

Best Ram Two Years Old and Over.—There were three entries. In this contest Ohio and Illinois locked arms, Ohio coming out of the very equal contest victorious, taking the first prize, it going to J. J. Dodge & Son, and Abner Strawn, of Illinois, the second prize. The ram exhibited by Mr. Strawn weighed 323 pounds; that of Mr. Dodge about equal in weight, more compact in form, with wool a little more lustrous.

Rams Under Two Years Old.—There were nine entries. First prize went to A. Strawn's animal, weight 290 pounds, a noble specimen of the race; second prize went to J. J. Dodge & Son.

Best Ram Lamb.—Seven entries. A. Strawn took first, and H. E. Clark took second premium.

Best Pen of Three Ewes Two Years Old and Over.—Six entries. A. Strawn took first, second, and third premiums; this was an exceedingly fine display.

Best Pen Three Ewes Under Two Years Old.—Seven entries. J. J. Dodge & Son took the first and third premium, and A. Strawn second.

Best Pen of Three Ewe Lambs.—Four entries. A Strwn took first and second prize.

SWEEPSTAKES, LONG WOOLS.

Best Ram of Any Age with Three of His Get.—Two entries. A. Strawn bore off the prize. A finer display rarely on exhibition.

Best Ewe with Two of Her Lambs.—Here the prize went to J. J. Dodge & Son.

Best Flock of One Ram and Five Ewes.—There were three entries. In this delightful show Ohio again came off victorious, J. J. Dodge & Son taking the premium, though Mr. Strawn's, of Illinois, were quite equal.

The display of Long Wools and Downs gave evidence of the rapid improvement of the mutton variety of sheep in Ohio. There is no class of sheep that will pay better to keep, there being a deficiency of these wools. The style of goods manufactured from them is constantly on the increase, and the carcass unsurpassed for mutton, save only by that of the South Downs. Let Ohio cease paying tribute to other countries for products imported that may be so profitably produced at home. The demand for mutton is rapidly increasing at home and abroad. Let us have a surplus to export, that the balance of trade may be in our favor.

MERINOS.

On Wednesday, September 1, 10 o'clock A. M, the sheep ring commenced filling with best ram, three years old and over, entered in Book 24, with two ewe and two buck lambs of his age. As the sheep entered the ring there was such a stampede of people, anxious to see the sheep before the committee had even commenced their arduous task, that the superintendent was compelled to clear the ring that the committee might proceed. Such a display of fine merinos it has seldom been our pleasure to witness. There were six entries, and after a very tedious examination the committee awarded the first prize to E. J. Hiatt & Bros.; second, to Caton Hill & DeWolf; third, to Cooper & McFarland.

Rams Two Years Old and Under Three.—Six entries. First prize went to Frank P. Spivey; second, to J. G. Blue; third, to E. J. Hiatt & Bros.

Rams One Year Old and Under Two.—Thirteen entries. First and third prize went to E. J. Hiatt & Bros.; second, to F. P. Spivey.

Ram Lambs.—Nine entries. Caton Hill & DeWolf took first premium; F. F. Spivey second, and R. Johnston third.

Best Pen of Three Ewes Over Three Years Old with Two of Her Buck and Two of Her Ewe Lambs.—Of these there were but two entries. E. J. Hiatt took first premium, and R. Johnston second premium.

Best Pen of Three Ewes Two Years Old and Under Three.—There were seven entries. S. P Kimble took first, E. J. Hiatt second, and R. Johntson third premium.

Best Pen of Ewes One Year Old.—Six entries. E. J. Hiatt took first, Caton Hill & DeWolf second, and F. P. Spivey third premium.

Best Pen of Ewe Lambs.—Nine entries. E. J. Hiatt took first, J. G. Blue second, and R. Johnston third premium.

SWEEPSTAKES, FINE WOOL SHEEP.

Best Ram of Any Age with Five of His Get.—The premium went to E. J. Hiatt & Bros.

Best Ewe of Any Age with Five of Her Lambs.—E. J. Hiatt took the premium.

Best Flock of One Ram, Three Ewes Over Two Years Old, Three Ewes Over One Year Old, and Three Ewe Lambs.—Five entries. E. J. Hiatt & Bros. were awarded the prize.

This closed the exhibition of fine wools. While the committee may have made some mistakes, in the main the awards were correct. It gave special attention to size of sheep, perfection in form, and due regard to quantity and quality of wool. Among the fine wool exhibiters we may name E. J. Hiatt & Bros., Copper & McFarland, J. G. Blue, Caton Hill & DeWolf, Frank P. Spivey, R. Johnston, J. H. Clark, A. M. Tyler, S. P. Kimble. There were many old and successful breeders and exhibiters absent, among whom we may name W. J. Emmons, of Kenton, and S S. Campbell, of Cadiz, Ohio. The display of Leicesters was not as good as in former years. As long as a man desires to be clothed with fine cloth just so long will there be a demand for Merino sheep. We were happy to witness the rapid tendency to combine in the one animal Merino the greatest quantity and best quality of wool and mutton, and trust the day is not distant when American Merinos will be greater favorites with our people than the French or Rourbulet flocks are to France.

As long as men's tastes differ so long may we expect a variety of breeds of sheep. Just as we have a variety of breeds of cattle and swine. We trust, however, that of all the different varieties none will be kept but the most profitable and improved kind, and that they will be spread all over this broad land of ours which is so well adapted to their profitable production, in such quantities as to not only feed and clothe our own people, but have a large surplus for exportation, that the revenue derived therefrom may enrich our farmers, manufacturers, and our government.

REPORT UPON THE SWINE EXHIBIT.

BY D. C. KENNON.

The undersigned, appointed as reporter to your Committee of the Swine Department of Ohio State Fair, held in Columbus, 1880, submit the following report to the work of the Committee:

The number of hogs on exhibition was the largest ever exhibited at the State Fair in this city, there being over four hundred head. Chester Whites, 41; Berkshires, 184; Poland China, 168; Suffolk and Essex, 23. In quality, as well as numbers, they have never been excelled.

The exhibiters were from Kentucky, Michigan, Maryland, and Ohio. In talking with the many exhibiters endeavoring to come to a conclusion as to which was *the* hog for slaughter purposes, as "they are grown for their meat for human food, and must finally come to the block and the scales for final test," each in his conversation claims that the hog which he breeds is superior to all others in every respect. So I came to the conclusion that each breeder was a credit to the State for preparing his stock in so fine condition for exhibition. In looking at the improvements in machinery for the last quarter century, it has been no greater than the improvement in the hog for the same period.

The exhibiters complain in regard to the location of the grounds and close pens. The pens that were built for show pens could not be used for that purpose on account of the number of hogs on exhibition, and it was very laborious on the part of the committee to walk so much in order to give their decision in each exhibition, but the exhibiters did all in their power to arrange their stock as conveniently as possible under the circumstances.

I would recommend to have a circle, with pens built so the Committee could get within, and with but little labor see all the animals in that class.

There is more money received for hogs sold by the farmers of Ohio than any other domestic animal, and the premiums paid by the Board should at least be equal to those on sheep, for the aggregate sale of pork is greater than that of both sheep and wool.

We see by the thirty-first annual report of "Pork Packing in the West," issued by the *Cincinnati Price Current*, the great increase of exports of bacon, pork and lard:

Year.	Bacon.	Pork.	Lard.
1869..................	Over 49,000,000 lbs.	Over 24,000,000 lbs.	Over 41,000,000 lbs.
1874..................	" 347,000,000 lbs.	" 70,000,000 lbs.	" 200,000,000 lbs.
1879..................	" 732,000,000 lbs.	" 84,000,000 lbs.	" 320,000,000 lbs.

The principal points of shipment are England and France, and on the same increase for the next ten years it would appear that the hog would be the most valuable to raise.

The committee appointed to perform the arduous duty of determining which was the best in each class were as follows: B. W. Carlisle, of Fairfield county; J. G. Withrow, of Butler county; P. F. Parrot, of Washington C. H. They met on Tuesday, the thirty-first day of August, at 10 o'clock A.M., and proceeded to the prescribed order of exhibition.

CHESTER WHITES, BOOK NO. 32.

Boars Two Years Old and Over.—One entry. First premium, S. H. Todd, Wakeman, Ohio.

Boars One Year Old and Under Two.—One entry. First premium, S. H. Todd, Wakeman, Ohio.

Boars Under One Year.—One entry. First and second premiums, S. H. Todd, Wakeman, Ohio.

Sows Two Years Old and Over.—Two entries. First and second premiums, S. H. Todd, Wakeman, Ohio.

Sows One Year and Under Two.—Two entries. First premium, John J. Maxon, Gallipolis, Ohio; second premium, S. H. Todd, Wakeman, Ohio.

Sows with Litter of Pigs.—First and second premiums, S. H. Todd, Wakeman, O.

This class of hogs were owned principally by one man, and but little competition. The committee, at this point, deviated from the prescribed order in the catalogue, and proceeded to examine the

ESSEX.

Boars Two Years Old and Over.—One entry. First premium to Wm. Smith, Detroit, Michigan.

Boars One Year and Under.—Two entries. First and second premiums to Wm. Smith, Detroit, Michigan.

Sows Two Years Old and Over.—Two entries. First and second premiums to Wm. Smith, Detroit, Michigan.

Sows with Litter of Pigs.—One entry. First premium to Wm. Smith, Detroit, Michigan.

SUFFOLK.

Boar of Any Age.—Four entries. First premium, Wm. Smith, Detroit, Mich.; second premium, T. B. Bennington, Laporte, Ohio.

Sow Any Age.—Four entries. First premium, Wm. Smith, Detroit, Mich.; second premium, John J. Maxon, Gallipolis, Ohio.

This concluded the labor of the committee on Tuesday. On Wednesday morning they proceeded to examine the

BERKSHIRE CLASS, BOOK 30.

Boars Two Years Old and Over.—Five entries, very fine animals. First premium, D. W. Todd & Son, Urbana, Ohio; second, Chas. Elliott & Son, Bladensburg, Ohio,

Boars One Year Old and Under Two.—Six entries, which showed considerable skill in breeding for size and quality. First premium, M. Ware, Washington C. H.; second premium, Clifford & White, Wellington, Ohio.

Boars Under One Year.—Twelve entries. First premium, H. M. Fullard, Bellaire, Maryland; second premium, Clifford & White.

Sows Two Years Old and Over.—Eight entries. It looked bad to see so many fine animals lose the first and second premiums. After the committee labored hard, the lucky ones were, first premium, Wm. Smith, Detroit, Mich.; second premium, M. Ware, Washington C. H.

Sows One Year Old und Under Two.—Eleven entries. Were as fine as the preceding entries, and the committee had to get them close together in order to make a distinction at all. First premium, M. Ware, Washington C. H.; second premium, D. W. Todd & Son, Urbana, Ohio.

Sows Under One Year.—First premium, D. W. Todd & Son, Urbana, Ohio; second premium, Clifford & White, Wellington, Ohio.

Sows with Litters of Pigs.—Eight entries. First premium, Clifford & White, Wellington, Ohio; second premium, D. W. Todd & Son, Urbana. This closed the duties of Wednesday.

On Thursday, September 2d, Mr. Parrot was excused, and Wm. Wright chosen in his place. The committee proceeded at once to discharge a very difficult task, the examination of the

POLAND CHINAS, BOOK 31.

This class of hogs was never equaled in Ohio, and the contest was very close, but after a thorough examination, premiums were awarded as follows:

Boars Two Years Old and Over.—First premium, E. & J. M. Klever, Bloomingsburg, Ohio; second premium, A. E. Slaughter, South Charleston, Ohio.

Boar One Year Old and Under Two.—A. E. Slaughter, first premium; Lon Hunter, Morrow, Ohio, second premium.

Boars Under One Year.—Eleven entries. A. E. Slaughter, first premium; Lon Hunter, second premium.

Sows Two Years Old and Over.—Lon Hunter, first premium; L. E. Parrott, Washington C. H., second premium.

Sow One Year and Under Two.—L. E. Parrott, first premium; A E. Slaughter, second premium.

Sows and Litter of Pigs.—Lon Hunter, first premium; T. C. Robinson, Washington C. H., second premium.

SWEEPSTAKES, BOOK 35.

It was with much difficulty a committee could be secured to pass on animals entered for sweepstakes. It was composed of the following gentlemen:

Z. H. Perrill, Groveport, Ohio; F. B. Cunningham, Antrim, Ohio; A. J. Wilson, Grafton, Ohio.

At half-past three o'clock on Thursday the committee organized, and proceeded to discharge their duties.

Boars of Any Age or Breed.—Seven entries. After a careful examination the committee awarded the premium to A. E. Slaughter, South Charleston.

Sows of Any Age.—Eleven entries. The contest was exciting and very close. The award was made to M. Ware, Washington C. H.

Fat Hogs.—Three entries. Premium awarded to William Smith, Detroit, Mich.

Poland Chinas.—Four entries. Premium awarded to Lon Hunter, Morrow, Ohio.

Chester Whites.—One entry. Premium awarded to S. H. Todd, Wakeman, Ohio.

Berkshires.—Four entries. Premium awarded to M. Ware, Washington C. H

Essex.—One entry, but was well deserving the highest honors. Premium awarded to William Smith, Detroit, Michigan.

This closed the examination of the finest lot of hogs that ever was in Columbus.

If the committee erred in any case, it was an error of the head and not of the heart. Men will differ honestly in their opinion.

PREMIUM CROPS AND EXPERIMENTS.

CROP EXPERIMENTS.

BY B. CUSICK, OF MARION COUNTY.—"ONE ACRE CORN."

One-half of the acre was manured with barn-yard manure, 7 loads to the ½ acre, spread on the ground the last week in April, 1880, and before plowing. Plowed May 5, 1880, 6 inches deep. Planted May 15, 1880, with "Lemying Corn," with a double Planter, 3½ feet one way by 15 inches; 2 stalks in a place; worked with a two-horse Cultivator five times. Result on ½ acre, 65 bushels.

Also ¼ of the same acre, no manure, but in all other respects as to plowing, planting and cultivating, same as above-named half acre. Result on ¼ acre, 20 bushels.

Also ¼ of the same acre, plowing, planting, cultivating, etc., same as above. In this experiment I spread 5 loads of hog and chicken manure on the ground after plowing and harrowing, but before planting. Result on ¼ acre, 28 bushels.

In the above three experiments the soil was the same in each, and the same soil and condition as described in application for premium on 5 acres corn.

Marion, Ohio, December 8, 1880.

APPLICATION FOR PREMIUM ON CROP EXPERIMENTS.—"ONE ACRE POTATOES."

One-half of the acre was manured with barn-yard manure, 8 loads to the half acre, spread on the ground April 26, 1880, before plowing. Plowed 10 inches deep the first week in May, 1880, and planted same week. Cultivated the ground by rolling and harrowing before planting. Ground made very fine. Run out the furrows with single shovel plow about 8 inches deep, 3 feet apart. Planted the seed about 8 inches apart, covered with the common hoe, with about 3 inches of soil. Plowed the crop five times with double and single shovel plow. Seed, "Brownell's Beauty." Cut in small pieces, one piece in a place. Result on ½ acre, 108 bushels.

Also ¼ acre of the same acre, planted as above, same seed and cultivation, etc., in all respects as above half acre, except no manure. Result on ¼ acre, 40 bushels.

Also ¼ acre of same acre, same seed, planting, cultivating, etc., in all respects as above ½ and ¼ acre, but no manure. When the vines commenced coming through the ground, I applied 25 bushels slacked lime on the surface of the drills, then covered the lime with ground with a double shovel plow. Result on ¼ acre, 75 bushels.

In the above three experiments the soil was the same in each, and the same soil and condition as described in application for premium on 5 acres corn.

Marion, O., December 8, 1880.

CORN.

["A."]

State of Ohio, Marion County, ss.:

SURVEY MADE NOVEMBER 13, 1880.—John Cunningham, being duly sworn, says he has accurately measured the land upon which B. Cusick raised a crop of corn the past season, and that the quantity of land is five acres and no more.

JOHN CUNNINGHAM.

Sworn to before me, this 19th day of November, A. D. 1880.

J. E. DAVIDS, J. P.,
Marion, Ohio.

["A."]

State of Ohio, Marion County, ss.:

B. Cusick, being duly sworn, says that he raised a crop of corn the past season, upon the land measured by John Cunningham, and the quantity raised thereon was 521 bushels and no more (weighed), and that the statements in regard to the manner of cultivation, etc., are correct to the best of his knowledge.

B. CUSICK.

Sworn to before me, by B. Cusick, and by him subscribed in my presence, this 8th day of December, 1880.

J. E. DAVIDS, J. P.,
Marion, Ohio.

APPLICATION FOR PREMIUM.

Statement of cultivation of 5 acres corn, raised during the past season as per affidavits hereto attached, marked A, and made part of this application:

MANURE AND LABOR.

14 loads	barn-yard manure	$10 50
1½ days'	plowing (with Sulky Plow)	4 50
3½ "	planting and cultivating with and without team	8 00
14 "	harvesting (cutting and husking)	17 50
3 "	marketing	7 50
		$48 00

SOIL, SEED, &C., &C.

Seed—good quality Lemying corn.

Soil, etc.—black sandy loam, clay sub-soil, and thoroughly drained with tile; was seeded with English clover; same was plowed under. Planted May 14, 1880, with a double Corn Planter, 3½ feet one way, and 15 inches the other; 2 stalks in a place.

B. CUSICK,

Marion, Ohio, December 8, 1880.

WHEAT.

State of Ohio, Champaign County, ss.:

Allen Loudenback, being duly sworn, says he has accurately measured the land upon which Simon Beery raised a crop of wheat the past season, and the quantity of land is nine and seven-eighths acres and no more (9⅞ acres).

ALLEN LOUDENBACK.

Sworn to and subscribed before me, this 24th day of August, A. D 1880.

DAVID LOUDENBACK, *Notary Public.*

State of Ohio, Champaign County, ss.:

Simon Beery, being duly sworn, says that he raised a crop of wheat the past season upon the land measured by Allen Loudenback, and the quantity raised thereon was four hundred and seven bushels, and no less ("by weight"), and that the statements in regard to the manner of cultivation, etc., are correct to the best of his knowledge.

SIMON BEERY.

Sworn to and subscribed before me, this 24th day of August, A. D. 1880.

DAVID LOUDENBACK, *Notary Public.*

"STATEMENT," OR DETAILED ACCOUNT.

Cr.

By amount sold and shipped:		
301 bushels at $1.00 per bushel	$301 00	
106 bushels kept for seed and bread	106 00	
		$407 00

Dr.

To paid for plowing	$15 00	
harrowing and dragging	5 00	
drilling and use of drill	3 50	
14 bushels seed	14 00	Fultz variety.
cutting with self-binder	15 00	
shocking 645 dozens	6 45	
threshing and sacking	28 50	
hauling to elevator	3 00	
paid E. M. Bennett & Son, for elevating and shipping 301 bushels	3 01	
Total expense		$93 46
Net balance for use of land		$313 54

REMARKS.

The soil upon which the crop of wheat was raised by me the past season, is a clay loam, underlaid with limestone gravel. In 1877 a crop of corn was raised upon clover sward; seeded to wheat in the fall and sown to clover and timothy in the spring of 1878. There was an excellent stand of grass. In May, 1879, we turned into pasture five head of horses and five head of cattle, and a little later, when the clover had headed out, about seventy head of hogs. The stock remained there until the latter part of June, when the field was mowed and ten tons of excellent hay taken therefrom. It was then allowed to grow up again, and about the 20th to 25th of August was plowed eight to ten inches deep, harrowed and dragged, and sown on the 15th day of September. The sowing was done with a Buckeye Drill, planting the wheat about two inches deep. The plants came up even and strong and ripened early; the cutting being done June 23d. The variety used was Fultz wheat. There was no manure or fertilizers used, and the stand was a remarkably even one. The farm was purchased by its present owner thirteen years ago, and was considered to be badly worn, although Mad River bottom land. Deep plowing, good cultivation, and about one-third of the time in clover, has produced the satisfactory result of a yield of $41\frac{13}{60}$ bushels per acre, instead of ten to fifteen, when poorly and continually cropped. The great error most men make is to undertake too much. Farm less, and better, is far more profitable.

SIMON BEERY.

REPORTS FROM COUNTY SOCIETIES.

ALLEN COUNTY.

The Allen County Agricultural Society held its Eighteenth Annual Fair at Lima, on the 28th, 29th and 30th days of September, and October 1, 1880.

The principal crops raised in our county are wheat, corn, oats, flax (for seed), clover-seed, hay and potatoes. Wheat was of good quality, but the yield was not as large as in 1879, averaging per acre about twenty bushels; but the increased average over 1879 more than made up for the loss in bushels per acre. The number of acres of corn planted was an increase over 1879, and yielding at least one-third more, averaging about forty bushels per acre—quality very good.

Oats below the usual average quality—light. Flax-seed, good average crop. Clover-seed good yield. The hay crop was cut short by early drouth—about one-third. Pastures from the middle to the last of the season very good. Potatoes, fair crop, worth fifty cents per bushel. Vegetables of most kinds were good. Apples a good half crop, but not keeping well. There is no complaint of hog-cholera. Cattle healthy. Horses in some localities have the epizootic, or distemper badly.

The cattle are principally Short Horns and their grades, and the county has made rapid strides in that direction, and it is safe to say that the improvement in fine cattle during the past five years has been not less than fifty per cent. The show of hogs was very fine, the Berkshire and Poland China outnumbering all other breeds; some very fine Chester Whites and Essex's were shown.

The exhibition of horses, cattle, sheep and hogs was the best ever made before the society. The show of agricultural implements was very large, and showed to good advantage the many labor-saving machines. In the fruit, grain, vegetable and floral departments, the exhibits were large and very fine. The Agricultural Society is in a prosperous condition. There is one great drawback, however; the society does not own the ground, which necessitates temporary expenses every year.

The weather during the fair was inclement, and we had only one fair day, which cut our finances short. The number of entries has increased in the last five years over 1,000, which is evidence of the growing prosperity of the society, and we think that with judicious management the future success and usefulness of our society is assured.

BELMONT COUNTY.

Our principal crops of this county are wheat, corn and grass. We also grow large quantities of oats, barley, rye, buckwheat, sorghum, broom-corn, potatoes, and all kinds of garden stuff. Clover-seed and timothy-seed are, also, produced to a considerable extent. Wheat, this year, has been generally good, averaging nearly twenty bushels per acre, and of good quality. The Fultz variety is, perhaps, most preferred, its yield being the best. Our soil is favorable to the growth of wheat, being a strong lime stone clay on the ridges, where much the largest portion of the crop is raised.

Our most valuable crop, in the opinion of many farmers, considering all things, is grass. To the general farmer, the stock-raiser, the wool-grower, and the dairyman, the grass crop is the great staple; and while the prices of other products often furnish no adequate return to the producer, the hay crop is always profitable. Farmers and land owners recognize these facts, and, as a consequence, there is a steady increase in the area of land devoted to grass culture.

The fruit crop has been a very full one; of the smaller varieties, such as peaches, plums, cherries, etc., there was an abundant crop, the fruit being of large size, and good quality. The apple crop is, also, very large, superior both as to quantity and quality. No new crops have been introduced this year.

None of the crops have suffered unusually from destructive insects unless it be the potatoes, which have been injured, perhaps, one-fourth in some localities by the Colorado bug. The remedy used with success is the usul one—Paris green.

Stock breeding is carried on to a large extent in this county. The principal breeds of cattle are Durhams, Devons, and some few Jerseys, but much the larger number are grades from these varieties. We are rapidly improving our cattle by the introduction of these breeds, and many of our farmers are making a specialty of cattle-breeding. Our society, during the last few years, has shown a marked increase both in the number of entries and quality of the stock shown, some of the animals being very fine.

Belmont being one of the principal wool-producing counties in the State, there is, proportionately, more sheep raised than any other stock. The only breed raised to any great extent is the Merinos or fine wools. There are, however, quite a number of long wool sheep in the county, but as they do not seem to flourish well, except when kept in small flocks, our farmers generally are of the opinion, from that and other reasons, that the fine wools are the most profitable, all things taken into consideration. The hoof-rot, which has been such a pest for a number of years, seems to be gradually (but slowly) disappearing, owing to the persistent determination to get rid of it, but whether it can be entirely eradicated and banished, is a matter of speculation.

Of the different breeds of hogs, viz., Berkshire, Poland China, and Chester Whites, it is very difficult to determine which is considered the best, as each breed has its admirers and friends, all insisting that their breed is the most desirable. All things considered, it is probable the Berkshire meets with more general favor than any of the other breeds, at least they exceed any of the others in numbers. However, there are some fine specimens of all the breeds above mentioned.

Fowls.—A glance at the fowl cages at our fairs, the past year especially, shows that this branch of "stock raising" is receiving a new impetus; the kinds have been increased and varieties improved, and we are glad to see them becoming more highly appreciated.

The past season the spring and early part of the summer were dry, there being very little rain-fall. But during the latter part of June, July, and the first part of August, the rain-fall was considerable, enough to benefit and make good all the crops that were not too far advanced at that time.

The surface of the land in this county being undulating and hilly, tile draining, as a rule, is not necessary; hence, that branch of industry is not practiced to any extent. Such being the case, of course we can not give any statement of the benefits derived therefrom.

The principal timber of our county is oak, sugar-maple and beech. We have also hickory, walnut, ash, gum, poplar, locust, and a large number of the smaller varieties of forest-trees. The different species of oak are the most abundant. The other kinds of timber are fast becoming scarce. The walnut is much sought after by cabinet-makers, and workmen in fancy articles of wood-work. Much walnut is also exported for veneering purposes, and it is only a question of time ere this species of wood will be extinct in this county for practical purposes. Along the lines of railroads there seems to be a mania for buying wood-land; stripping it of its timber, and then selling the land for what it will bring for agricultural purposes, and should this ruthless destruction of timber continue, not many years will elapse before there will be a dearth of timber in this county, as no trees are being planted by our farmers to replace those which are being so lavishly destroyed. It seems to be a settled principle that as the timber of a country is destroyed, its rain-fall is diminished, and if this be the case, it certainly behooves our farmers to replace by planting the timber which is annually destroyed.

The present condition of our county society is decidedly flattering, judging from the unusually large number of persons in attendance at the late fair, and the interest manifested by all the visitors, and the excess of the offerings. We, therefore, believe that the prospects of the future usefulness of the society is certainly indicated in a manner not difficult to understand or interpret.

BUTLER COUNTY.

The Thirtieth Annual Fair, of Butler county, under the auspices of the Butler County Agricultural Society, was brought to a successful close on the first Friday in October, after continuing five consecutive days. The weather was unusually splendid. Over one thousand dollars' worth of improvements had been added to the grounds. The elegant half-mile track, owing to the commendable practice of leasing it to a trainer of horses during the summer, who kept it in constant use and repair, was in perfect condition. Vendors of different wares complained that the prevalence of political excitement interfered with their business elsewhere, but it is doubtful if such was the case here, although the good citizens of the county were not remiss. The attendance was fully up to previous years, and the beautiful grounds were daily thronged by thousands from throughout the county and elsewhere

The display of agricultural implements far exceeded that of any former years, notwithstanding the fact that the Board had withdrawn all premiums in this department.

In the Cattle Department the display was very fine. The Board, the present year, provided this department with additional accommodations, and were rewarded by having them well filled. The breeds exhibited were Short Horns, Devons, Jerseys, Galloways, and Holsteins.

The Swine Department was admirably filled. Weight, form, quality and quantity all were represented separately and combined, and constituted an excellent compliment to intelligent swine breeding.

The entries in the Sheep Department were in excess of former years.

The entries in the Horse Department were numerous and various. The society endeavors, so far as it can, and not to the disparagement of other departments, to make the premiums in this sufficiently large to stimulate competition. The entries in other departments were equal to former years, and upon the whole the fair of 1880 was a success, both socially and financially.

Hamilton, Butler County, Ohio.

CARROLL COUNTY.

The society held its Annual Fair on their grounds near Carrollton, the 6th, 7th, and 8th of October. The weather being fine, the attendance was large. The exhibition was larger than usual, except in one or two departments.

The Horse Department was well represented, there being quite a number of noted horses on exhibition; and there seems to be quite an improvement, especially in driving horses. There has been quite a number of fine horses brought into our county from Kentucky, which are making a marked improvement in that department. We have also had, lately, some very fine draft horses imported into the county, which are likely to be quite a benefit to those wishing heavy horses.

Cattle, in quality, were equal to former exhibitions, there being some very fine cattle on exhibition, but there was not so great a number as usual.

Sheep were very fine. This seemingly being a common meeting ground for all the neighboring counties, and even States, as Virginia and Pennsylvania, as well as adjoining counties, all contributed to the show.

Hog and Poultry departments were well represented. The hall was particularly fine, there being a larger show than ever before, being filled to overflowing.

With regard to crops, our hay crop was very light, not being over a half crop. Oats were hardly a medium crop, while corn and wheat were, likely, as good a crop as were ever raised in the county.

Fruit crop was never better, and our county is particularly noted for its adaptability to the raising of fruit.

CLERMONT COUNTY.

The Thirty-Second Annual Exhibition was held on the convenient and beautifully-located Fair Ground at Boston, September 7th, 8th, 9th, and 10th.

The exhibition was fully up to the best years in all departments, without any exceptions, and in fruit it far surpassed any we have ever had.

The Floral Hall was filled with flowers and beautiful specimens of needle and ornamental work, showing the interest taken by the ladies in our county fair.

In the department of sheep there was a large exhibition of fine and coarse wools and grades.

The Mechanical and Manufactory departments were greatly in excess of previous years, and the improvements in modern manufacture were plainly manifested.

There were no entries on field crops.

Our County Agricultural Society has been in operation, as reorganized, for twenty-six years, and, as a general thing, success has attended it during that period, and especially in the last few years there has been a gradual increase in interest as well as receipts; so much so, that our people look forward to the annual exhibition with eagerness, anticipating a great deal of pleasure as well as profit thereby.

The society from the beginning has aimed to carry out the object for which it was organized, viz., the encouragement and advancement of agriculture. It has rigidly excluded every thing of an immoral nature, such as shows, wheel of fortune, etc., tending to divert the attention of the people from the legitimate purposes of the organization. Hence, we have the support and encouragement of the influential and substantial farmers of our county.

The Board, with much energy and zeal, labored hard to make the fair a success, and had the satisfaction of outrivaling all former exhibitions in interest, attendance, and receipts.

The early season, beautiful weather, and general desire to make the fair a success, all added to the enterprise, and we can say in truth it was the best fair ever held in the county.

Perhaps a summary of the different crops raised in our county would not be amiss, as our county is purely agricultural. The number of acres of wheat grown in the county during the last year, 21,572; number of bushels, 239,063; average per acre, 11.1. Oats—number of acres, 9,594; bushels produced, 185,388. Barley, 57 acres, with a yield of 1,520 bushels. Corn, 38,640 acres; bushels, 1,095,301; average per acre, 28 bushels. Rye, 950 acres; bushels, 7,857. Buckwheat, 159 acres; bushels, 1,692. Meadow land, 14,859 acres; 11,543 tons of hay. Clover, 5,628 acres, 1,527 tons. Irish potatoes, 8,053 acres; bushels, 521,596. Sweet potatoes, 96 acres; bushels, 6,724. Pounds of butter, 564,422. Sorghum, 267 acres; gallons of molasses, 16,861.

Our farmers have an excellent market, and get the highest prices for their produce, and ample facilities for transporting it, having the Marietta R. R. on the north, the Ohio river on the south, and between three narrow-gauge railroads running through the county, and another being constructed. Taking all in consideration, the prospect of the farmers of Clermont county is flattering indeed.

CLINTON COUNTY.

Clinton is bounded on the north by Greene, on the east by Fayette, on the south by Highland and Brown, and on the west by Warren, and was formed by taking territory from Warren and Ross counties, and was established in the year A. D.

1810. Not having the constitutional quantity of four hundred square miles, a small addition was subsequently made from Highland county.

To understand the condition of agriculture as it existed in this county during the year 1880, it is necessary to take into consideration a series of years, because the changes that take place in any given year are not so marked as to be appreciable, yet like the morning dawn which steals upon the earth so slowly, that the keenest eye cannot perceive the change moment by moment, till at last the sun rises and daylight is here. In like manner, little by little our people have subdued the wilderness, and surrounded themselves "with all that exalts and embellishes civilized life."

The year 1880 is gone, and the farmers of Clinton can take in retrospect their doings, and it is manifest that they have accomplished more than in any former year.

Most things for the last twelve months have been favorable to the best interests of the farmer, gardener and stock-raiser.

The mild winter of 1879 and 1880 favored all pertaining to agriculture in our climate, and throughout the year "the early and latter rain" and the late frost favored the ripening of our corn, till it was solid to perfection.

Much rain fell after the wheat was shocked, so much that great apprehension prevailed that a wet harvest like 1875 would be repeated. The rains, however, stopped in time, so the crop was saved, stacked, housed, threshed, and garnered in good condition, and we had the largest number of bushels ever produced in this, county.

Velvet-Chaff, Mediterranean, Fultz, and Indiana Swamp wheats are our main varieti s. Farmers are beginning to drop the Fultz, and some complain that the Indiana Swamp rattles off too easily.

The large yield was owing to the great breadth sown in 1879. The yield per acre was not so great as last year, and the average was much reduced by a hail storm that passed over a belt of our county, from the south-west to the north-east corner, which did not entirely ruin the wheat, but injured it so that fields which would have yielded twenty bushels to the acre produced but four.

The November Report of crops in Ohio, shows that the acreage of wheat sown for 1879 was 29,225 acres, and that the yield was 516,982 bushels; and for 1880 there was in wheat 62,559 acres, which yielded 885,582 bushels, an average per acre of 12.5 bushels, while in 1879 the average was 17.7 bushels.

It is proper to state, that the exceedingly bountiful yield of 1879 stimulated our farmers to take more care, and they put in their wheat better than they had ever done before, notwithstanding they were not rewarded by so bountiful a yield as the year before.

It is generally drilled in, and by many immediately rolled. Some put a dressing of stable and barn-yard manure upon the ground after it is broken, harrowing thereafter till the ground is properly pulverized; it is then ready to receive the grain, and from one to one and a half bushels is sown to the acre.

Timothy seed is frequently sown by a grass seed attachment to the wheat drill, and at the time the wheat is sown, and in the spring (and on a light snow, if possible), clover seed is sown on the same ground.

This, on the following year, will be a meadow of timothy and clover grass.

A hay of these mixed grasses is the best for many purposes. Clean timothy is thought to be best for horses that are working, and pure clover for milk-cows, and mixed for sheep and young stock. Not much hay is shipped.

This county is rolling and well watered. Eight creeks head therein. Six flow into the Little Miami river. Two are tributaries of the Scioto river. In these are plenty of bass and other fine fish, and along these streams are rich bottom lands, almost exhaustless in fertility, and at the foot of the hills fine limestone springs abound, that furnish unfailing water, wholesome for man and beast.

Anderson's Fork and Tod's Fork furnish the Dayton limestone for building purposes, and gravel is found on all our streams and many other places.

Miles of free pike were made this year, and twelve miles of toll pike converted into free pike. Most of our streams are crossed on splendid iron bridges.

The Champion Iron Bridge Factory is located at Wilmington.

Clinton has two standard and one narrow-gauge railroads, crossing from east to west; and 348 miles of turnpike, all of which, except 9 miles are free.

Cattle have decreased 20 per cent. in the last year, owing to feeders from other counties buying them up. The feeding qualities of our cattle are not excelled by any in the State. A few of the smaller, or what are called milk breeds, have been introduced, but are not received with favor; most farmers refuse to raise them. Ours are mostly Durhams and their grades.

Sheep are on the decrease on account of foot-rot and scab, both diseases to be shunned.

Horses are of that kind called general purpose horses, and many of them are good roadsters.

Hogs are the favorite of stock. The Poland China and Berkshire have firm hold here, with Poland China in the lead. Hog-cholera has nearly disappeared from our county. Pork commanding a better price than last year, gladdens our farmers and enhances their interests.

Oats were nearly a failure on account of the rust; we had no army worm.

Twenty per cent. more corn raised in 1880 than in 1879, and of a better quality.

Our grass was excellent, and farmers are beginning to be awakened to their best interest in saving grass seed; much more clover seed is saved than formerly; enough seed saved to supply our county.

Irish potatoes were good; thousands of bushels were raised during the last year The following hints are from one of our most successful potato raisers, Wm. Turner, of Clark township: He cuts off the end of the potato that has so many eyes in it, and throws it away; the rest is cut into pieces, so there will be one or more eyes in each piece; the cut potatoes are allowed to wilt and form a sort of skin over the cut part, which takes place in four or five days, then they are ready to plant. He plants in hills so they can b. tended both ways, putting three or four pieces in a hill. The reason for not planting the blossom end is, that it produces weak, spindling plants, and too many of them in a hill So soon as the potatoes show through the ground they are plowed, throwing the furrows on each side so they will just meet at the plant, nearly covering it up. Should you cover them up lightly no harm is done while the plant is so young. Covering an old plant kills it. They are so cultivated as to keep the ground mellow, and the weeds out, and when they are laid by the potatoes are not left in a ridge, but in a square, flat hill, lowest at the plant, so that if the season should be dry the little rain that comes will run to the plant and not away from it; and should it be wet, the furrow between the plants and the tile drains will relieve from all surplus water, and such has been his success as a potato raiser. He is known best as "Tater Turner."

Almost every farmer raises a few sweet potatoes. The culture given to sweet potatoes in the South is not proper here. A successful culture in this county is as follows:

First—Enrich the ground by well-rotted stable manure.

Second—Break up the ground seven or eight inches deep.

Third—Make ridges, and they should run north and south; this gives the greatest warmth; and small, so that from the top of the ridge to the unmoved hard ground shall not be more than twelve to fourteen inches deep; when settled they will be about ten inches deep. This third instruction is the main secret. If you have a deep ridge you will get long, small potatoes. A shallow ridge gives you the opposite—a short, thick one, and not so much vine. The reason seems to be that, as soon as the root strikes the solid ground it swells out and makes a thick potato.

The culture is very simple. Keep the weeds out by pulling them up or skinning them off with a hoe. Keep the vine loose at all points, except where it grows from the ground, and lay it along on the top of the ridge, so the sun may strike the ridge below the vine.

Disturb the ground as little as possible in keeping the weeds out. Have no fears of the ground being too hard in the ridge, the potato can take care of that. Plant as soon as frost is out of the way, and you are sure to have a remunerative crop. This year our sweet potatoes were not so large, but excellently flavored; better than usually found north.

But little change in making butter, in quality or quantity. Many of our farmers' wives could learn much to their advantage in this respect.

The cheese that is made here is so small a quantity that it is hardly worth taking into the account.

Some good sorghum syrup was made, but not as much as formerly

A few maple sugar-camps were worked, yielding the purest of sweets.

Bees are kept by some, but not very extensively—1,500 stands, probably, are all that are in the county, and there never was a poorer season for honey than 1880; but few bees swarmed, and a fewer still made a surplus of honey.

The usual damage has been done by dogs among our sheep; 235 killed; 255 torn and not killed, causing a loss of more than $1,500, for those that are killed and torn are not all the loss there is; the rest of the flock is damaged.

Our apple crop was good—the best for years. All varieties mostly perfect. Winter varieties dropped badly before picking time.

During the summer much blight appeared among the pear-trees, killing many outright.

We had our usual crop of plums; all the finer varieties being entirely ruined by the curculio.

Most farmers have a few cherry-trees: they, too, fruited in their season.

The quince bushes were laden with their golden fruit.

Gooseberries and currants suffered badly in this county from the ravages of worms. Some farmers say that copperas water will destroy them.

Raspberries were cut short for lack of rain. Our blackberries were better than usual. The general remark "that 1880 was a fruit year," is strictly true in this county.

Clinton has two large nurseries for fruit and ornamental trees. One is partly in the corporation of Wilmington, of some two hundred acres, belonging to Leo Weltz; the other near New Antioch, owned by J. M. Vandervort.

Timber is becoming scarce in our county. Nineteen saw-mills are, and have been busily engaged the past season, cutting our timber into lumber. Much walnut, ash, and cherry have been shipped. This county was originally covered with the choicest timber; then, there being no market for it, as now, it was burned to get it out of the way. A few persons have planted black locust groves, but we have probably not yet reached the point that it would be profitable to raise timber.

Farmers have miles of Osage hedge in this county, that serves as a fence, and they are planting more every year. A new impetus was given to hedging by the introduction of a plan of wiring down the hedge at three years old. Many old hedges have been thus treated, but it yet remains to be proven whether a hedge is an economical fence. Others are putting up board fence, four boards high. The writer thinks this the more economic fence for Clinton.

More farm buildings were painted this year than usual, and more attention was paid by our farmers in squaring their fields, whitewashing fences, cutting weeds in the fence corners, on the sides of the road, and in beautifying their farms, than ever before.

Our hundreds of miles of free pikes have placed our county on an upper plane. Now produce can be taken to market at all seasons of the year, and traveling is almost celestial, when compared with our former mud roads.

Ten tile mills, urged to their capacity, do not supply the demands for tile, such are the results produced by draining. Our land is easily drained, being black and friable. The heads of all branches are being drained.

Self-binders were introduced and sulky attachments to breaking plows. Many fanning mills were sold. All the modern improvements in agricultural implements are now used—wheat drills, corn droppers, mowing and reaping machines, hay-forks, horse-rakes, sulky corn plows, and the most improved breaking plows.

Some fertilizers are being brought in and used on wheat ground. Most depend on rotation in crops. manure from the barn-yard and plowing under clover and Hungarian grass. Such fertilizing is regarded the cheapest and most profitable that can be resorted to.

Clinton's grains, fruits and vegetables were not molested more than usual by insects and worms. A few apple-trees were stripped of their leaves by a measuring-worm. Cabbage were injured also by a worm. Potatoes were attacked on some farms by the Colorado beetle.

Not much tobacco was raised, for as a rule Clinton's farmers object to raising it, as well as barley, from a moral stand-point. There is not a still-house within her borders, and a majority of her citizens are wonderfully opposed to the liquor traffic.

Our county fair was a success in many particulars, but continues its existence under a debt. The weather was very unfavorable the first two days, being too cold. Our fair was held September 7th, 8th, 9th and 10th, at Wilmington, the county seat. The total receipts were $2,711.50. There were 907 entries, and premiums were offered to the amount of $3,010.50, and $1,888 were awarded. Of this sum $1,661.50 were paid to the successful exhibiters. The remainder of our receipts were expended on permanent improvements on the fair ground, and current expenses. It is the opinion of many that there are too many fairs in Clinton county.

Sabina, in the eastern part of the county, holds a very large fair; but few exceed in the State. Her premium list for 1880 was $5,800. She paid in full every premium awarded, and is out of debt.

Blanchester, in the south-western corner of the county, also holds a large and satisfactory fair every year.

Notwithstanding the Presidential election, and so much time given to political meetings, farmers attended to their duties with a steadiness and confidence that is gratifying to contemplate.

CRAWFORD COUNTY.

The season of 1880 has been one of almost unprecedented success in the line of agriculture in this county, as there has been no failure in any crop, and most of them have been above the average. In wheat we had the largest acreage ever sown in the county, and a good yield of excellent quality. The breeding and raising of fine-blooded stock has become a specialty with many of our leading farmers. In cattle, the Durham, Devon, Jersey and Ayrshire are the breeds that have been successfully introduced, while in hogs the Poland China, Berkshire and Chester Whites, together with their crosses, are the ones generally raised by our best breeders. The principal timber standing at the present time is beech, oak, sugar, hickory and elm, and in quantities sufficient to supply the demand. We have four tile factories in the county, which are run to their full capacity, and then are unable to supply the demand which is increasing every year, as our best farmers have practically demonstrated the great value of a thorough system of underdraining in most kinds of soil. The County Agricultural Society was not a complete success, financially, this year, as we had to contend with very heavy expenses, and also one day of bad weather, making it impossible to pay our premiums in full. Our exhibition was very fine in every department, especially in live stock, as every class was full to overflowing.

Bucyrus, January 3, 1881.

ERIE COUNTY.

The Twenty-Second Annual Fair of the Society was held September 21st, 22d, 23d and 24th. It was the most successful exhibition in the history of the county. On the 3d day, on which Governer Foster, and Secretary Chamberlain, of the State Board, delivered addresses, the attendance exceeded seventeen thousand people, as verified by the gate receipts—the largest number ever assembled on the grounds.

In all classes the exhibition was fully up to the standard attained by the county, and in some it was superior to former fairs. Notably so in the departments of domestic and ornamental needle work, fine arts, etc., in which woman's handiwork is prominent. Floral Hall exhibit has been made one of the leading features in the annual fairs of this society, and wisely so, from the increased interest thereby awakened in the fair in the home circle, where the good word of wife and mother is potent.

The show of stock in all classes was good, and gave encouraging evidence of an increased interest throughout this section of the State in the raising of higher grades of horses, cattle, sheep, and swine.

In the department of farm machinery a special feature was made of the exhibition of self-binding Harvesters. Practical and thorough tests were given on the grounds, with the machines in actual operation. Much interest was taken in the trials.

It has always been the policy of this society to give quite as much prominence to those departments of the fair that enlist the interest and enterprise of the business man and manufacturer, as to those departments that depend upon the farmer and stock-raiser, and to this policy is due in no small degree the society's marked success in its fairs. The County Fair, to be successful, must be something more than merely a show of stock and farm products, with a few horse races to amuse the crowd. It must represent in its exhibitions, and call into competion, all classes of the county's industries. Ohio is no longer merely a crop-producing State. She has advanced into the "third estate," and the annual fair of the county, equally with the district and State fair, must be representative alike of the arts and trades and the farm and field. This society bears testimony that such a policy has awakened throughout city, town and country, a common interest in its welfare, a common pride in the success of its annual fairs, and resulted in a mutual benefit to all classes of the community. The social relations, also, between the people of city and country, have by this means been strengthened and cultivated, proving not only beneficial, alike to the farmer and business man, in the relations of trade, but also highly advantageous to their respective home circles. As a still further means of promoting these social relations and mutual interests in the fair, the society each summer holds a county picnic, at which all classes meet in friendly reunion and social enjoyment.

The volunteer system of service has always been the rule with the society. No salary is paid to any director or official, except a small fee to the two clerical offices of Treasurer and Secretary. Every director, every officer, serves without money and without price. He must pay out of his own pocket even the expenses he incurs in discharging his official duties, and when he gets tired of doing it, gives way to some other public spirited man who will. The society not only invests each year all its earnings in improvements, but it never hesitates to go into debt for any improvement that the public good seems to demand. Its total outlay for improvements on the grounds during the past sixteen years foots up over thirty thousand dollars. During the past two years it has paid out for this cause alone, $5,754.06. In the year 1880, besides paying $1,600 of remaining indebtedness for the tunnel improvement of 1879, it incurred a further outlay of over $1,000 for such other improvements as would add to the convenience of exhibiters, and the general comfort and beauty of the grounds. The society does not look for the time ever to come when further improvements will not be needed, or when the policy of hoarding or dividing receipts will be wise. The total receipts of the society for 1880 were $7,147.48. The tunneling of the race track in 1879, at a cost of $4,000, has proven to be more than its strongest advocates anticipated. But for the means it affords of getting to and from all parts of the grounds at all times, it would not have been possible for seventeen thousand people, and thousands of teams to gather and move about at will over the twenty acres of grounds, without accident, jar, or inconvenience. By means of this improvement every foot of the grounds is utilized for the purposes of the fair.

The wheat crop of this county for 1880 was the largest ever produced, footing up 657,705 bushels. The toal wheat acreage for the year was 26,076, an increase over the acreage of 1879 of 3,594 acres. The average yield to the acre was 25.2 bushels, and placed the county at the head of the list as the banner wheat producing county of the State. This marked gain in the wheat crop is not due to any natural superiority of the soil—other counties in the State have equally as good soil for wheat growing—but rather to the practice, each year becoming more general, of plowing clover sod for all wheat lands. While the manure of the barn-yard is carefully utilized for other crops, it is by no means the dependence of our farmers for their wheat lands. The result is, also, due to more general and systematic under-draining. Many farmers by this means are making first-class wheat fields of wet, low lands. They have learned that the first secret of successful wheat growing is to make the lands dry. The practice of under-draining has increased very rapidly during the past three years in this county, and we are now reaping the benefits of it.

All other crops, excepting grass, which was a short one, were fully up to the average. Fruit of nearly all kinds was unusually abundant. The grape crop, which is a very important one in this section, was not so large as in 1879, but the increased price paid made it fully as remunerative to the growers. Fruit is being raised here with much more care, skill, and system than formerly. It is not only being made a paying adjunct of farm crops, but is being more largely grown as a business, and is proving a profitable one.

The wool interest has also materially increased during the past year, the fact becoming more generally realized that the wheat and wool husbandries go well together.

Prices of farm lands have been well maintained, and owners more than realize the money invested in improvements, in the increased value of their property.

Note.—The society offered a premium of $30 for the best and $20 for second best farm in the county. One farm from each township was entered for premium.

We find room below for a part of the interesting and valuable report of the committee :

FARMS.

No farm can compete for a premium two consecutive years.

Best improved and cultivated farm, with fixtures, of 100 acres or over, No. 1, patent changeable ice and water pitcher, with goblet, value	$30 00
Second best improved and cultivated farm, with fixtures, of 100 acres or over, No. 2, patent changeable ice and water pitcher, with goblet, value	20 00
Best farm under 100 and not less than 40 acres, No. 3, patent changeable ice and water pitcher, with goblet, value	22 00
Second best farm under 100 and not less than 40 acres, No. 4, patent changeable ice and water pitcher, with goblet, value	15 00

Premiums on farms for 1880 were awarded as follows:

On 100-acre farm—First premium, A. Minzey, of Groton township.

Second premium, Dan'l Buck, of Perkins township.

On 50-acre farm—First premium George N. Sprague, of Berlin township.

Second premium, John Lavin, of Perkins township.

In making our decisions, we have been guided by considerations which it may be well to state. Whatever work that was done for the especial purpose of preparing the farm for the examination, such as mowing weeds and briers, which remained still green in the fence corners, we did not allow any value. Improvements made legitimately out of the farm itself, and by the hands of the owner, indicate a more successful farming than when such improvements are made by outside business. A farm, when mixed husbandry is pursued, and all branches eminently successful, is more praiseworthy than when only a single crop is relied on. This, however, is measured from the net profits arising from each method. The average sales of grain, stock and all other products of the farm, for 1879, as reported of the fifteen competing farms, was about fifteen dollars per acre; the sale of the best was about twenty dollars per acre, and the lowest reported was twelve dollars per acre. A little calculation will show the great gain to the community that would arise if all the farms were to be cultivated as well as the best. The difference is eleven dollars an acre between the lowest and the highest, and the lowest was a fair sample of general farming. In these fifteen farms there were 1,822 acres, all of about equal fertility, yielding fifteen dollars per acre. Yet, if managed as well as the best, there would be a gain of eight dollars per acre, or $14,576 per year. Apply this standard to all the farms of the county, and what an enormous increase of wealth it would bring, and yet twenty-three dollars per acre is by no means a large return. The committee were deeply impressed with the power wielded by the County Agricultural Society. Everywhere the people are proud of it, and we believe the late move of the Board in entering one farm in each township an excellent one. A generous rivalry will be created, and a neatly kept farm is the beginning of neatness in the whole community. When the entries are many, it becomes apparent that there should be distinctions in farms, between those devoted to stock and those to grain. To decide between such farms is a perplexing task, as it is comparing things wholly unlike.

In conclusion, while we are proud of being citizens of the glorious State of Ohio, we are still more proud of being citizens of Erie, a little county, but whose productiveness is not to be measured by square miles. When citizens of the east end grow vain over the natural advantages and thrift of their locality, they should take a drive through Oxford, Margaretta, Groton and Perkins, and have the conceit taken out of them by the shoreless stretches of corn, wheat and meadow, and perhaps the west end citizens might learn something in the same direction by a visit to the eastern townships.

Every citizen should feel a just pride in the great number of highly improved farms and fine residences in our county, and rejoice that there is steady and rapid improvement in this direction.

HUDSON TUTTLE,
GEO. H. MORGAN,
L. S. STOWE,
Committee.

FAIRFIELD COUNTY.

The following report of the condition of agriculture in Fairfield county, during the year 1880, is respectfully submitted:

The principal crops raised in this county, and *an estimate* of the amount and average yield per acre of each, are set forth in the following table, viz.:

	No. acres.	Amount.	Average per acre.
Corn	70,000	3,150,000 bushels.	45 bushels.
Wheat	45,000	900,000 "	20 "
Rye	500	4,000 "	8 "
Barley	1,500	22,500 "	15 "

Oats	2,300	32,200 bushels	14 bushels.
Buckwheat	200	1,000 "	5 "
Potatoes	2,000	156,000 "	78 "
Sweet potatoes	200	8,000 "	40 "
Tobacco	10	3,000 pounds.	300 pounds.
Meadow hay	5,000	30,000 tons.	6 tons.
Clover hay	4,000	32,000 "	8 "
Clover-seed	....	3,000 bushels.	....

It is estimated that 4,500 acres of clover were plowed under for manure.

The winter of 1879–1880 was very mild. Spring rather backward. Corn suffered slightly from drouth in the latter part of the season, but it is estimated that this crop of corn is the best ever raised in this county.

Wheat was again a grand success; the acreage greater, and the average yield fully up to that of last year. Never before have our farmers had such a success with both their staple crops, corn and wheat, in the same year.

Fruit of all kinds is abundant.

Live stock has been comparatively free from contagious disease. An occasional complaint of hog-cholera is heard.

We have three drain tile manufactories in this county, and our farmers are devoting more time and money each year to improvement of wet lands.

The forest-trees of this county are walnut, oak, hickory, maple, elm, chestnut, poplar, sycamore, and pine, which are being rapidly exhausted for fences and railroad ties; less and less wood is used for fuel each year.

During the year 1880, the Board of Directors of this society purchased fourteen acres of land adjoining their Fair Grounds, which, with the necessary fencing and grading, will cost about $10,000. Our last fair was fully up to the high standard of fairs in this county. The management will have a half-mile track by next fall, which will, no doubt, greatly conduce to the success of the fair.

The enclosed copies of the Treasurer's statement, and list of premiums awarded, are the best exponents of the condition and prospects of the Fairfield County Agricultural Society.

State of Ohio, Fairfield County, ss.:

Elijah Feeman, being duly sworn, says he accurately measured the land upon which M. M. Miessie raised a crop of corn the past season, and the quantity of land is one acre and no more.

ELIJAH FEEMAN.

Sworn to before me this 13th day of October, A.D., 1880.

J. M. BROYLES, *Justice of the Peace.*

State of Ohio, Fairfield County, ss.:

M. M. Miessie, being duly sworn, says that he raised a crop of corn the past season upon the land measured by Elijah Feeman, and the quantity raised thereon was $124\frac{69}{70}$ bushels and no more, weighed, and 118 bushels by measure.

Manner of Cultivation.—Beech Land.

Plowing ground May 12, 1880	$1 00
Harrowing and planting	1 25
Cultivating 3 times with double plow	1 50
Cutting and husking the same	5 00
Marketing	3 00
Seed-corn, 1 peck; variety, "Pennsylvania Premium Mammoth"	15
Total amount of expenditures	$11 90
Valuation of corn	$43 75
Value of fodder	2 25
Total value of one acre	$46 00
Less expenses of crop	11 90
Net profits (besides use of land)	$34 10

The manner of cultivation is correct, to the best of his knowledge.

M. M. Miessie.

Sworn to before me this 13th day of October, A.D., 1880.

J. M. Broyles, *Justice of the Peace.*

State of Ohio, Fairfield County, ss.:

Frank Peters, being duly sworn, says he accurately measured the land upon which Henry Reed raised a crop of yellow corn the past season, and the quantity of land is one acre, and no more.

Frank Peters.

Sworn to before me, a Notary Public, in and for the county of Fairfield, this 13th day of October, A. D. 1880.

James A. Tobin, *Notary Public,*
Fairfield county.

State of Ohio, Fairfield County, ss.:

Henry Reed, being duly sworn, says he raised a crop of yellow corn the past season, upon the land measured by Frank Peters, and the quantity of corn raised thereon was ninety-seven bushels and two pounds ($97\frac{2}{70}$), of seventy pounds to the bushel, actual weight, and that the statements made in regard to the manner of cultivation, etc., are corect to the best of his knowledge. And, furthermore, that said land was a gravelly clay, second bottom.

Henry Reed.

Statement of Time Employed and Expenses Incurred.

April 15. To one day plowing	$2 50
May 1. To harrowing and marking ½ day	1 25
May 28. To planting with planter	50
June and July. To three plowings	1 00
To cutting same	1 25

To husking same	4 00
To hauling to market	2 50
Total expenses incurred	$13 00

Sworn to before me, a Notary Public, this 13th day of October, A. D. 1880.
JAMES A. TOBIN, *Notary Public*,
In and for the County of Fairfield.

State of Ohio, Fairfield County, ss.:

Elijah Feeman, being duly sworn, says he accurately measured the land upon which M. M. Miessie raised a crop of wheat the past season, and the quantity of land is one acre, and no more.

ELIJAH FEEMAN.

Sworn to before me this 13th day of October, A. D. 1880.
J. M. BROYLES, *J. P.*

State of Ohio, Fairfield County, ss.:

M. M. Miessie, being duly sworn, says he raised a crop of wheat the past season upon the land measured by Elijah Feeman, and the quantity raised thereon was $31\frac{54}{100}$ bushels, and no more (weighed), and the statement in regard to the manner of cultivation. Clover sod, clay loam, plowed August 25, A.D. 1879; sowed September 5th, A. D. 1879. Amount of seed, 1½ bushels to the acre; variety, Red Chaff. Valuation of wheat, $1.50.

Plowing ½ day	1 00
Cultivation ½ day	1 00
Harvesting ¼ day	4 50
Marketing	50
	$7 00

Valuation of wheat	$29 64	
Value of straw of same ground	3 00	
Gross value of one acre	$32 64	
Expenditures	7 00	
Net value of one acre	$25 64	Real value.

The above statements are correct, to the best of his knowledge.

Sworn to before me this 13th day of October, A. D. 1880.
J. M. BROYLES, *J. P.*

FULTON COUNTY.

Fulton county is peculiarly situated, there being no commercial or manufacturing interest in the county of importance; almost the entire population is occupied in agriculture. We also have a great diversity of soil, being adapted to the growth of grass, grain of all kinds, and fruit.

The crops for 1880 were very satisfactory; the wheat in quantity not quite up to the crop of 1879, but in quality very excellent; the Fultz variety being mostly the favorite.

In some portions of the county the corn was somewhat injured by the wet weather in June and July; but on sandy soil, and on clay land that was tile-drained, the crop was unusually good, both as to quantity and quality.

There was not as much hay cut as usual, owing to the clover being badly winter-killed last winter. But very little clover seed harvested, owing to the cause above stated.

Fruit crop simply immense—thousands of bushels of apples rotted in the orchards, or fed to hogs and cattle; the price offered not being sufficient to pay for handling.

Our farmers are realizing the importance of raising better stock, and important improvements have been made in that direction within the last few years. Underdraining is receiving a great deal of attention, and thousands of tile are being laid every year.

In the north part of the county cheese manufacturing is becoming an important interest, there being some five or six factories that, during the cheese making season, aggregate from one hundred to one hundred and fifty cheese per day.

Our Agricultural Society is in a very promising condition, with ample ground (forty acres), owned by the society, with good substantial buildings, and nearly out of debt. Our fair for 1880 was pronounced by competent judges to have been the best ever held in the county.

The show of live stock of all kinds was the finest ever seen here.

Mechanical implements of all kinds were largely exhibited.

The floral, fine art, and domestic hall was filled to overflowing with a choice display of fine goods. In fact, every department was very satisfactorily filled; and so far as the articles on exhibition were concerned, it was a decided success.

The future outlook and usefulness of our society is very encouraging, owing to the good feeling and general interest manifested by the best citizens of the county.

GALLIA COUNTY.

The Twenty-fifth Annual Fair of this society was held on the 8th, 9th, 10th, and 11th of September, 1880, on the grounds owned by the society and county, jointly, in Gallipolis City.

The first and second days were very unfavorable on account of rain, which deterred many from making entries. The third and fourth days were clear and pleasant, and the attendance on these days was large, being fully an average. Another drawback on the fair was the failure of the O. & W. Va. R. R. Co., to complete their road—which runs through the Fair Grounds—as they had caused the society to advertise that passengers and freight be discharged and received on the grounds without transfer. Many being disappointed in this, made no entries, as the railroad was not completed in time.

The fair, however, was a success, the receipts being up to the average. The show in the stock departments was good, particularly in horses, swine, sheep and thoroughbred cattle.

The display in the hall, by the ladies, of their handiwork, was the best ever shown on the grounds, as was that also of the dairy and culinary departments, there being a lively competition in all of these classes.

Fruits, grains, seeds and vegetables were not equal to former years.

There was no competition for premiums on field crops.

Our farmers are giving more attention to improvement in stock-breeding, and although a new feature here, no county in the State, perhaps, can show a greater improvement in this respect than this.

The county, as a county, takes but little interest in our fair, except some four or five townships on the river and around the county seat, but we hope in the future to get all to take an interest, so that we may have, truly a *county fair.*

HANCOCK COUNTY.

No exhibition of our society heretofore held has been so generally and so enthusiastically commended, as was that of 1880. The attendance was not so large as it would have been had the weather been more favorable. Rain on the morning of the third and fourth days—always our best days, too—happening as they did, just at a time when people would be leaving their homes, very materially interfered with the attendance on both those days, and although the attendance was nearly as large as could be accommodated, yet a very perceptible effect was had on our finances.

The show of articles could scarcely have been excelled, certainly not in quality. The very best of everything was on exhibition. Such is now the reputation of our county for the production of all articles pertaining to an agricultural and mechanical district, and of the management of the society for honesty, and promptness in paying the liberal premiums offered, that it commands the respect and confidence, as well as the attendance, of not only our own people, but draws largely on the surrounding counties.

The value of permanent improvements, made this year, exceed in value $1,500, and yet there was a scarcity of exhibition space so great was the competition. The entries very largely exceeded those of any former year.

The wheat crop of our county was abundant and good. Corn crop fair, but scarcely an average crop. Oats good. Hay short, but harvested in good order, and of good quality. Fruit crop a fair average. Apples very abundant, and peaches were plenty wherever cultivated. This crop is so uncertain, however, that but little attention is paid to its cultivation. Berries were good and abundant. Small fruits almost a failure, and of poor quality. Our vegetable crop was of very fine quality, and an enormous yield, except potatoes. We are still troubled with the Colorado beetle, and the cabbage-worm, and as to the latter our people are without a remedy against its ravages.

As usual, our stock men were present with as fine a display in their line as has been made at any county fair. There is a very warm competition amongst our shorthorn breeders, who are in earnest in their efforts to improve the stock of the county. And such breeders as David Downing, Henry Shank, Alfred Davis, J. W. Hutson, John Markel, J. A. Vickers and C. F. Reese, challenge the State to present a finer lot of cattle at a fair than they can.

Very fine specimens in the horse line were on exhibition by Al. Eaton, J. W. Hutson, Aaron Kissell, J. S. Bayless and others, whose efforts to improve that class of stock is meeting with the success it deserves.

The display of sheep and swine, while not large, fully made up for this in quality.

The past prosperous year has been employed by the farmers in providing better buildings, and in a general repairing and improving of farms, and many very neat and valuable houses and barns erected, thus adding materially to the wealth of the county.

With full crops, from a most productive soil, with ready sale for all kinds of produce, at good prices, and with cheapness in the line of purchases, and peace in State and county, our farmers and mechanics and laborers are happy.

HARDIN COUNTY.

The Annual Fair took place on the 6th, 7th, 8th, and 9th days of October, and was held at Kenton, Ohio. The number of entries exceeded, somewhat, those of the year before, showing that the interest in agriculture in our county has not depreciated.

In the Stock Department, the display was fully equal to the year before, and was not excelled, at least, by any county of our size in the State, and I am informed, not by many that are larger and more prosperous.

Considerable improvement was shown in the Horse Department over last year.

The show of Agricultural Machinery, Farm Implements, and Mechanical Department was most excellent in all branches; in fact, I think all the different departments have made marked advances over other years.

Our crop of wheat was large, and very good; more acreage than the year before, but average not quite so good, not exceeding over 18 to 20 bushels to the acre.

Corn very good.

Potatoes plenty; cheap, and excellent in quality, far exceeding last year.

Fruit and vegetables good in quality and quantity, and taken all in all, the residents of our county have every reason to be thankful for everything that is good and beneficent for the year 1880.

JACKSON COUNTY.

We appear to have reached a new epoch in our agricultural history; at least, one year somewhat more productive than many previous years. For some time the wheat crop has been so poor that some of our farmers have not sowed any, and the majority have sowed very little. But the last two years have been vastly more productive than the preceding ones, and we have had good crops in the main. Among the varieties used, are Gypsy, Swamp or Mediterranean, Fultz, and Clawson; the second named, Swamp, is considered the most sure, while the Fultz is good for average, but disliked by some on account of the smut. The Gypsy, so far as I can ascertain, is almost universally favored; while as yet the Clawson is not much known, but considered a good wheat on account of the yield.

Considerable is the amount of fertilizers used, especially bone dust, and meal, and the success is readily marked; but whether safe in the long run or not, has not been as yet fully ascertained.

The crops of oats and rye are this year but meager, and the crops of buckwheat are moderate.

The average corn crop was large; some of our farmers used bone dust in the hill.

Many of our people are taking interest in stock raising, especially of cattle, as was shown at our 26th Annual Fair, held at the "Old Fair Grounds," on the 16th, 17th, and 18th of September, where very fine cattle were exhibited. Our President, Hon. J. L. Long, who visited the State Fair, and the Secretary, J. D. Gillilan, who visited the Gallia County Fair, affirmed that they saw not any better stock in their visits than were exhibited at our meeting.

A new era has dawned upon us as a society, we think; for, for some years the fairs have been failures, almost; indeed, the one previous to this paying but 60 cents to the dollar; but in the main the officers are changed, and sober, enterprising men are in their places. On these two accounts the people had somewhat lost confidence, and consequently the interest waned.

Another difficulty was, that it was held in David's Grove instead of the regular grounds, which had been sold to Messrs. Brown and Johnson, but this year we took it back to the "old grounds" (renting them), and offered new premiums, such as the awards on different kinds of iron ore, stone coal, hill and shaft, and different irons.

We now have a membership of 225, while last year the number of members was but 79.

CROP REPORT.

The weather was unfavorable in early spring for putting in the crops, but later was more favorable. We had nice summer and fall weather, extending the pasture season quite late. Wheat, an average crop in quantity, but not in quality; it lacked plumpness. Corn, less than an average. Oats an average. Potatoes an average. Hay, less than an average crop.

Fruits—apples, large crop, but poor quality, rotted badly; peaches good, both as to quantity and quality; grapes almost a failure as to quantity, and quality bad; strawberries, currants, gooseberries, and raspberries, a fair crop.

Horses, cattle, hogs, and sheep in fair condition, with a sufficient amount of feed to carry them nicely through the winter, and no stock diseases prevailing.

KNOX COUNTY.

By the general duplicate of Ohio for 1879, we find embraced within her borders 25,376,264 acres; the average appraised value is $28.21; the average complement to the several counties would be 288,366 acres. By reference to last land appraisement of 1880, not yet in print, we find contained within the borders of Knox 328,838 acres, being a surplus above the general averave of about 40,000 acres; the average appraised value is $31.39 per acre, or $3.18 in value per acre higher than the general average; hence, one among the largest, also one among the best producing counties within the State. While it is not pre-eminent in the production of any single article of grain or stock, it is at least equal in the general result, as will be better understood by the following statistical report of 1879, upon which I shall not elaborate, comparing only a few of the leading productions of the county:

For example, the wheat crop of Ohio for 1878 was 35,218,783 bushels, an average to the eighty-eight counties of 400,213 bushels. Corresponding crop of this county was 478,026 bushels, being 77,813 bushels, or about 20 per cent. above the average. The corn crop of 1878 was 114,839,127 bushels, averaging to the county 1,304,990 bushels. Corresponding crop of this county was 1,544,116 bushels, being 239,126 bushels, or 19 per cent. above the average. The number of horses in 1878 was 730,642 head. Average to this county would be 8,416 head. Corresponding number in this county 8,986 head, being 570 head, or 7 per cent. above the average. The number of cattle in 1878 was 1,630,004 head, an average of 18,522 head. Corresponding number in this county was 21,361 head, being 2,839 head or 15 per cent. above. Of sheep there were 4,267,261 head, making 48,491 head to the county. Corresponding number in this county was 140,114 head, being 91,622 head, or 188 per cent. above the average. Of hogs there were 2,041,649 head, making 23,200 head to the county. Corresponding number in this county was 28,070 head, being 4,870, or 21 per cent. above the average. In this mention of a few of the leading articles of agriculture some may take it that they are the articles best adapted to this soil, which is not the case. Perhaps no other county has a more varied soil, ranging in quality to a high degree of extremes, merging from the thin clay, gravelly loam on the higher lands, into larger areas of fine, black loam, and thence into the richest river bottom, a soil in the main easily cultivated and particularly adapted to all staple products. Though strange it may seem, yet it is true, that the richest bottom lands, inexhaustible in depth, so famous in the production of corn, are none the less suited for wheat, differing in this respect from much of the bottom lands in Ohio. Hence, from its peculiar adaptation to the growth of all kinds of grain and stock. After long experience our farmers are arriving at that stage of wisdom by a strict adherence to a general development of all branches of agriculture, the result of which has been more remunerating, and, to a greater degree, satisfactory. A continued persistence in an unlimited succession of one kind of grain or stock is certain to bring destruction. That material substance eliminated from the soil by the growth of wheat, is not so necessary for corn, and so on throughout the whole catalogue. The kind of food required for one plant or animal may not be necessary to the growth of another. For example, a case now before me, which I will here mention, is a body of land in this county, lying on and near the mouth of the Kokosing river, known as Indian Fields, which has been planted to corn for about sixty successive crops, and which has, to quite a perceptible degree, lost its run for the production of corn, yet recent practical demonstration has shown that on this same apparent exhausted land wheat can be raised to perfection, and clover will grow almost spontaneously.

The same rule of mixed husbandry is alike applicable to stock-raising. While it is true the diseases which the horse falls heir to, cattle are not susceptible of. It is just as certain that either or both will become diseased when crowded or kept in excessive numbers. In our opinion, nothing has been more instrumental in bringing about such epidemic diseases as hog-cholera, cattle-fever, horse-distemper, hoof-rot, etc.

The county is about equally divided between level and rolling land—north and east half is rolling, and well provided with excellent springs and building stone, while the south and west half is level, and liberally supplied with streams; a very small per cent. in waste or uncultivated lands; certain portions require artificial drainage, which demand is liberally supplied by two tile factories in the county; is well supplied with good timber, and as to productiveness it ranks in the following order: For wheat, it is the twentieth county in the State; for corn, twenty-fourth; for oats, thirtieth; for hay, twentieth; for clover-seed, sixteenth; for horses, thirty-fourth; for cattle, twenty-fifth; for sheep, sixth; for hogs, twenty-seventh.

The wheat crop harvested in 1880 was the largest ever raised in the county, being the result of a larger acreage than ever before. Average yield per acre not up to crop of 1879, nor quality so good, but in the main aggregated more. Principal varieties are Amber, Fultz, and Clawson. Amber and Fultz are the standard; Clawson too soft, and not in favor with the millers.

In consequence of so large a wheat acreage the area of corn was not so large as usual; the crop, however, was an excellent yield, and of good quality, making a fair average with other seasons. The corn crop is entirely used for home consumption.

Oat crop not an average either in quality or quantity, as dry weather in filling time did great damage.

Hay crop not an average in quantity, but very superior in quality.

Potato crop was good. The Colorado beetle has, in most localities, disappeared.

Flax crop is one assuming considerable importance in the county. The extensive oil mills of James Israel, of Mt. Vernon, consuming, annually, large quantities of seed, which, hitherto, has been brought from the Western States. This demand for home market has awakened considerable interest among our farmers in the direction of flax raising, out of which they are making quite a success. The last crop was a fair average.

Rye, buckwheat, barley, sorghum and tobacco are raised and handled in more limited quantities than any other acticles of farm products; nevertheless, any or all adapts itself well to this soil.

Bee culture is attracting some attention. The net profits arising from apiarian skill and labor will turn into the lap of the husbandman a larger per cent. than does any other branch of agriculture (labor considered). This county is one in the highest rank, producing over 40,000 pounds of honey annually.

The apple and peach crops were more than an average, and of good quality.

Grapes were abundant, and ripened perfectly.

There was an increased and increasing interest in agriculture evidently manifested at our last fair, which was the Twenty-Seventh Annual Exhibition held on the society's grounds in Mt. Vernon, on the 5th, 6th, 7th, and 8th days of October, which was an entire success. Every department was filled to overflowing; the choicest specimens of products, stock, and machinery were lavishly displayed in all departments; the entries numbering 744, for which there was over $3,000 in premiums offered.

The introduction of thorough-blood stock has been of almost unlimited value to the county. Some of the finest bred trotting stallions in the State are owned here, and popularly known by their exhibitions of speed at the Ohio State as well as other fairs. There are three or four breeding companies of heavy draft horses, that are producing stock not excelled either in or out of the State. We cannot speak too highly of the success of several breeders of cattle, sheep and hogs, who have very greatly raised the standard within the last ten years, and are now gathering in the harvest of their investment and labor. Great credit is due them, and too much in terms of praise cannot be said. Our Society shows unmistakable evidence of advancement and prosperity. The prejudices so long existing against our annual exhibition, in consequence of speed classes, has to a great degree given way, and we hope the future will not be distant, when all good men and women who love the advancement of civilization, and the cultivation of the soil with intelligent and correct principles, which is the foundation upon which the whole superstructure of mechanics' arts and sciences are built, will join us heart and hand to make our Agricultural Societies what they should be.

LAKE COUNTY.

Our County Fair for 1880 was held on the grounds of the society, in Painesville, on the 22d, 23d, and 24th of September; weather very good, and attendance good, making it a success financially.

The show of horses was good, especially one, two, and three year old colts.

The show of Durham bulls, steers, heifers, and calves was very fine, and attracted much attention. There were, also, some very good Herefords, Jerseys, and Holsteins on exhibition, but our show of horned cattle is confined largely to Durham full-bloods and grades.

There was not as large a show of sheep and hogs as last year, but a very good one, and some very fine of both. A creditable show of poultry; also, of agricultural implements.

The Vegetable Hall was well filled with a good variety, and very fine. An extraordinary show of apples in variety and quality. The fruit show, aside from that, was not large—peaches, pears, and grapes being, in this vicinity, a light crop, and not of good quality.

The domestic and fancy articles were in abundance, and extra nice—one of the best exhibitions of the kind ever made in the Hall. Altogether, we had good cause to be satisfied with the exhibition as a whole, and with its results. There seems to be no decrease in the interest and desire to make our County Fair an occasion of pleasure and of profit to all who attend.

Wheat, oats, corn, and potatoes are the principal crops of the county. Wheat this year was excellent in yield and quality, averaging about twenty bushels per acre; oats, fair crop; corn, medium; potatoes, about half a crop—with quite a number of acres still in the ground. The pesky bug (Colorado) has been very plenty, causing much labor and trouble in fighting them. The only other trouble from insects has been from the cabbage and currant worm. Almost the only thing used to kill the potato bug is Paris green; for the currant worm, a dusting of white hellebore once or twice stops their work pretty effectully; for the cabbage worm, salt brine, ashes, soap-suds, and a variety of other remedies are applied, with not much good from anything. My own plan is to plant pretty largely, and I get a sufficient number of good heads for use.

The principal timber of the county is beech, maple, hickory, oak, white-wood or poplar, and ash. They are, or have been abundant, but are being exhausted. The white-wood has been made into lumber largely, and is getting to be quite scarce. Oak, too, has been worked up into lumber, ship-stuff, and staves, and is now being bought in the tree, squared as large and as long as will admit, and shipped to England to be used for ships-tuff, etc. The skewer and tooth-pick factories are making use of large amounts of hickory. In fact, all kinds of saw-timber are getting scarce. The most noticeable effects of the timber exhaustion is shown in the increased violence of the wind across the farms, and the low stage of water in the streams in summer. I might add, also, in the depleted pockets of those who have allowed their best timber to be cut away.

The inhabitants of the county are mostly intelligent and industrious, living in comfort and independence. And, I may add, our county and County Agricultural Society are both in a condition of prosperity.

LAWRENCE COUNTY.

The managers of the "Agricultural Society of Lawrence county, Ohio," feel a large degree of pride in the varied improvements in all that relates to the farming interests of our county, so evident since the organization of our society, and believe that in few counties has such advance been made; and while so much has been done, they can readily see where still greater and more radical improvement is both possible and desirable, and especially do we think our energies should be turned to the elevation of farming as a business, and to the betterment of the home and its surroundings and its influences.

The advance noted in our last year's report still continues, and the number of improved horses, cattle, sheep, hogs, and poultry are being steadily increased, while the experiments they are making in tile drainage have proved its value, and larger areas have been drained during the past season, and numerous contracts completed with the manufacturers for tile to be laid the coming spring, which now promises to be favorable for such work.

Our usual crop reports having been anticipated by the information gained by your special correspondents on election day, leaves us little to say that will be of interest in this direction. Yet, we are of opinion that the new method is a great improvement on the old one, and that while the facts are gleaned earlier, they are the more reliable as coming direct from the farmers themselves, and the very men who should be the most interested in having these reports complete and correct in all their varied particulars.

Our fair was a success in all that the managers deem most valuable in a county exhibit. The real agricultural wealth of our county was magnificently displayed in our large and commodious halls. Especially notable were the fruit, grain, and vegetable departments, which have never before been so completely full, or in such great variety.

The live stock show was an improvement, very marked, on former years; even in the absence of one of our largest breeders, the show of Jersey milk cows being large and excellent. They are being brought into the county for dairy purposes, and for family cows, owned by people living in our towns.

Our exhibition in manufactures being mostly for show only, and not for premiums, do not figure largely in our list of awards, but add much to the completeness of our exhibition.

The past year we added a department of education to our list, which, though crude in its inception, and cumbersome in some of its details, proved a good departure from the stereotyped list of former years. The schools and teachers of our county took commendable interest in the work, and the exhibit was large and valuable, and we think that the present year we will be able to make this department of greater value.

We also deem it important that our society get nearer the homes and hearts of our people in its influences, for that which is good, pleasant and desirable, and we hope to be able to accomplish this more successfully as the years go by.

LORAIN COUNTY.

The Thirty-Fifth Annual Fair of the Lorain County Agricultural Society was held at Elyria on the 14th, 15th, and 16th days of September, A. D. 1880. The weather being favorable, the attendance was as great as at any former fair held in this county.

The exhibition of stock was not as good as usual. This was due to the fact that there were several fairs held in Ohio and other States—notably, the Tri-State Fair at Toledo—on the same days, which, by offering larger premiums than can be paid at a county society, took away some herds of the finest blooded stock in the county.

The exhibition of horses, as usual, was large, all the breeds raised in the county being represented. There has been a decided improvement in the last five years, or since the introduction of Clydesdale and Norman breed, in this department.

In the Cattle Department the show, though not large, was creditable to the owners, the stock being of very good quality. The county is noted for its long wool sheep, but the show was slim for the reasons above stated.

In swine, there were some fine specimens of Poland China on exhibition. This breed has become a very popular breed in the last few years.

The poultry show, as usual, turned out well. There were a large number of entries of very fine specimens, representing all the breeds raised in Ohio.

Dairying in Lorain the past year has regained what it lost in 1878, the patrons of the cheese factories realizing about $1.00 per hundred for their milk upon an average; a price quite satisfactory to them, and probably more remunerative than any other branch of farming in this county. Dairies have been greatly improved in the last few years by better breeding and better feeding, and the average yield per cow shows an increase of at least 20 per cent.

The wheat crop for 1880 proved the largest and best ever produced in this county, the average yield in some townships being thirty bushels per acre. This is mainly due to a better knowledge of the business. But a few years ago it was customary for our farmers to depend upon the merchant for their flour. It was as common then to see them driving flour home for family use as it is now to see them driving wheat to market. Absolute failures in wheat crops were common, and ten to twelve bushels per acre was considered a very fair crop. The great change in the production of this cereal I attribute to better tillage, the seed drill, and new varieties of wheat—the Fultz and Clawson taking the lead.

As to rye crop, there is but little raised in the county.

The oat crop promised an unusually good yield, the growth of straw being very large to within ten days of harvest, when the hot, rainy weather came on and had the effect to shrink the berry. The yield in bulk is up to 1879, but the quality is inferior.

The production of barley is confined to the region of the lake shore, a few farmers finding it very profitable. The yield the past year must have averaged fifty bushels to the acre.

Corn was a good crop; a good growth, well matured. Not much of it was shipped, as it is needed for home consumption.

The potato crop was also a large one, though not equal to 1879. The Colorado bug appearing in unusually large numbers, followed by the old-fashioned striped bug, made lively work for potato growers.

The hay crop was light, owing to dry weather in the month of May. The quality was good, and generally secured in good order, but the quantity will prove insufficient for keeping our stock through the winter. The feeding of grain will have to be largely depended upon.

The fruit crop was unprecedented. Apples were never so plenty and cheap before. Thousands upon thousands of barrels were bought by dealers as low as fifty cents per barrel, and shipped abroad, and as many more, probably, were fed to stock, and allowed to waste. Peaches also were a magnificent crop, and one of our important sources of revenue, being shipped to market by car loads, comprising all the best known varieties Of all other fruits, except pears, there was a great abundance.

LUCAS COUNTY.

The principal crops raised in this county are wheat, corn, oats, grass, potatoes, fruit, and garden vegetables.

The wheat crop of 1880 was not up to the two preceding ones in average, but the increased acreage would more than make up the deficiency in yield per acre. The Hessian fly damaged some pieces in the fall—a very few totally destroyed. The acreage was 18,926, and total yield 416,528 bushels, and the average per acre 22.1 bushels.

The corn crop was fully up to the average—estimated at 18,000 acres, and the yield at 40 bushels per acre, or 720,000 bushels.

The oat crop was below the average; and, in fact, oats are not raised to any great extent—probably 7,000 acres—and a yield of 200,000 bushels, which are very light this year.

The acreage of grass is diminishing, owing to the good crops and fair prices of wheat for two or three years past; probably not more than 8,000 acres, with a yield of not far from 12,000 tons. More attention is paid to clover than formerly, but still not as much as should be yet.

The potato crop was very poor in some townships; still there is enough for local consumption, and probably to spare. No great damage from its enemies the past year; and, in fact, our people do not dread the "bugs" as much as when we first made their acquaintance. We probably raise 2,400 acres, with a yield of 168,000 bushels.

The crop of fruit was all that could be desired; in fact, apples were a drug, many taking the finest of fruit to the cider-mill, and considerable were sold for 60 to 70 cents per barrel—first quality of winter hand-picked apples (barrels not furnished). The crop of small fruit was good; also, peaches and pears, although not raised extensively.

A good deal of land near Toledo is devoted to garden vegetables, of which the producers have no cause to complain the past year.

Some attention is paid to improved breeds of stock—more than formerly; in fact, a great improvement has already been made; still there is room for bettering our condition in this respect to a very great extent.

To sum up, the condition of the agricultural interests of this county are far better than a few years ago. Better cultivation and drainage are showing good results.

MARION COUNTY.

The Twenty-Ninth Annual Fair of the Marion County Agricultural Society was held on the society's grounds at Marion, Ohio, October 5th, 6th, 7th, and 8th, 1880.

No exhibition of Marion county has brought together a greater variety or display of its products than the past year. Neither has there at any time been so many persons interested in the exhibition of pure, blooded stock; as, also, the exhibition of agricultural implements and machinery by our own county manufacturers and dealers, so that it may be said with safety that Marion county is fast coming to the front in making her fairs not only a success, but a very great advantage to the community at large.

Owing to slight prevalence of scarlet-fever in Marion (there being only three or four cases in the town, and magnified to an hundred times that many in the country), at time of fair, the attendance was much less than in former years; This reduced our membership below what it has been for years; as, also, our receipts to at least a thousand dollars below what they should have been.

The raising of pure-blooded cattle, sheep, and hogs, is receiving more attention from our farmers year after year, and we may say that Marion county has some as fine specimens of stock as are to be found in any part of the State.

A very respectable per cent. of our farmers are endeavoring to produce better and more satisfactory results than in the past, by better cultivation and more careful selection of the best varieties of seed, and also by a more general use of the latest improved farm implements.

The introduction of foreign fertilizers is attracting the attention of our farmers. Ground bone and superphosphate are now being applied to various crops in a small way as an experiment. The preservation and use of barn-yard manure is receiving more attention yearly.

The crops throughout the county during the past year are a very fair average. The wheat is very good, and harvested more than an average quality. At the present time the Fultz wheat is giving the most satisfactory results.

The oat crop is very good.

Corn has done well; good yield, excellent quality, and sound. "Yellow Dent" is the leading variety.

The potato crop is very good.

The hay crop was light.

The cabbage crop is a failure, and has been for two or three years.

The growing of fruit is, and has been, receiving a great deal of attention in our county. Some very fine specimens were on exhibition.

Under-draining is being put in quite extensively, and with satisfactory results.

MEDINA COUNTY.

The Medina County Agricultural Society held its Thirty-fifth Annual Fair on their spacious new grounds Tuesday, Wednesday and Thursday, September 14, 15 and 16, 1880.

The grounds of the society consist of 22½ acres of land, situated about one-half mile south-west of Medina village. It has a new fair house, 100 feet long and forty wide. It is well supplied with wells, pens and sheds for all sorts of stock, and beautifully shaded groves of natural forest-trees, and as good a half-mile track as any in the State. So much for the surroundings.

These annual gatherings in the interest of the agricultural community are good, and I think it is safe to say that the fair of 1880 was one of the best, if not the best, ever held in the county. Everything passed off pleasantly. Good weather, good attendance, and good show. Nearly all enjoyed it, and none went away grumbling.

The entries were not quite as large as they have been, but what was lacking in quantity was more than made up in quality. All classes were well represented, and the show in poultry was just immense. But it is not my purpose to go into detail. Suffice it to say, we are out of debt, have paid nearly all our premiums, and something to spare in preparation for our next fair, that we intend to make the best County Fair in the State, all things considered.

MONROE COUNTY.

The Twenty-ninth Fair of Monroe county was held at Woodsfield on the 15th, 16th, and 17th days of Sebtemper, 1880. Providence favored us with fine weather, and the attendance was very good, but our receipts fell a little short of last year, owing to a small attendance on the third day. The second is always the best day with us, and there is usually a larger crowd than on either of the other days.

Our principal crops are wheat, oats, rye, corn, tobacco, potatoes, sorghum and hay, with enough buckwheat for home consumption; also, about all the fruits raised in this climate.

There was a good yield of wheat, which is now being delivered here at one dollar per bushel, and shipped over our narrow-gauge railroad to Bellaire, and thence to Baltimore. Since the completion of our road, farmers find a ready market for all their surplus grain. There has been bought here up to this date, about twelve thousand bushels of wheat.

We had a fair crop of oats, but light in weight.

There was also a good yield of corn, and of excellent quality, although it was late getting a start.

The tobacco crop was not as large as farmers anticipated, owing to the destruction of the plants by insects prior to its being set out. What was planted turned out very well. There is always enough raised each year to cause the destruction of more or less timber; and although we have plenty for all demands, yet the time will come when it will be thinned out, and the question of planting trees will be the all-absorbing topic.

The hay crop was not as large as could be desired, yet there is enough for our use.

Potatoes did not turn out very well, but enough were raised for home demand.

In regard to timber, we have an abundance, such as poplar, ash, oak, gum, sugar, linn, maple, beach, hickory, elm, sycamore, hemlock, white and black walnut, the last of which is not very abundant, for the reason that speculators have been through here buying the trees, and also lumber, and shipping it, they claim, to England.

We are not troubled much with destructive insects, our crops seldom suffering from their ravages.

In regard to swine, we have the Poland China, Berkshire, and Chester White breeds, some preferring one kind and others another; but as far as I can learn, the Poland China has the lead.

There has not been, as yet, a very deep interest manifested in the cattle department, for we have a much larger proportion of "pennyroyal" stock than anything else, which I hope in time will be succeeded by some of the better classes. There were a few entries of Shorthorns, and also of Devens, but farmers have not been able to realize the fact that it pays better to keep the best breeds, not only for dairy purposes, but for beef cattle also. It is certainly a fact that the pure-bloods, possessing the beauty and symmetry of form that they do, will command a better price than the common scrub stock so prevalent in this county. It is to be hoped that farmers will pay more attention to this branch of their business in the future than in the past, and that hereafter we will be able to show a better exhibit of fine cattle, and that they are beginning to see wherein their interest lies.

Our county being hilly and rough, is well adapted to the raising of sheep, and I am glad to note that this branch of industry is receiving more attention each year. A number of parties in the the county having seen the necessity for improving their flocks and keeping a finer grade of sheep than heretofore, have sent for and obtained some of the finest bred Merinos, and I am glad to say their efforts have so far been very successful; so much so, that others seeing their good works have become interested, and now the finer grades are taking the lead, which in time, I have no doubt, will root out all the coarse wool varieties. Hope to be able to make a better showing in this department in the future, for this county is surely as well adapted for raising sheep as any other one in the State.

Tile-draining is, I might say, unknown. In fact, we have no need of it, for Providence has made ample provision for self-drainage.

Our people still take a great interest in the fair, but we are sadly in need of better ground, as well as better accommodations. The receipts this year will about put us out of debt, but we will have nothing to show what our debt was for. We must have ground of our own, if we want to be self-sustaining, and have a fair that will be creditable, and present larger exhibits, and also increase the enthusiasm of our people in these yearly gatherings.

MORGAN COUNTY.

The Twenty-eighth Annual Fair of the Morgan County Agricultural Society was held on the grounds of the society, adjacent to McConnelsville, on September 21, 22, 23 and 24, 1880. The weather was propitious, and the people of the county turned out in goodly numbers to attend this annual exhibition of the society. The interest in our fairs does not abate, and the reputation that we have created in the past for holding the best and most interesting displays of stock, agricultural and horticultural products in the Muskingum Valley, we will strive to maintain in the future. Success, as a matter of course, depends upon good management and favorable weather, but our people are awake to their own interests, and that of the society, and realize that they derive large benefits from its annual gatherings and competitive displays, and by their presence encourage and aid in building up this important institution of the county.

The entries were considerably larger than for some years past—aggregating 1,006.

In the horse department the exhibition was good, and much rivalry evinced, although the few thoroughbreds that we have in the county were not on the grounds. Horses, in this county, are above the average, with a marked improvement over those of "other days."

Our cattle display was not as large as I have known it in former years, yet the quality was excellent, and for the numbers on the grounds, could not easily be surpassed. Durham cattle are becoming more general with our farmers.

The display of sheep was in excess of any former year, and elicited the highest praise from everybody conversant with this species of stock. There was an unusually large number on exhibition, and of the finest and best grades ever brought together on our grounds. Sheep husbandry is an important feature in this county, as our hills are well adapted to their purpose, and we have a large number of successful sheep breeders, of whom Messrs. Hiatt Brothers, of Chester Hill, probably rank as high as any in the State. In this particular Morgan county has made great advancement in the past ten years in the quantity and quality of her sheep—producing at this time some of the finest breeds in the country.

The exhibition of hogs was not large, but those on the grounds were exceptionally good. We generally raise a large number of hogs in this county, but there has been a falling off in the quantity within the past two years.

Our poultry display was very fine, both in the number and variety of fowls on the grounds. An increased interest is being manifested in the propagation of good fowls, and more attention paid to fine breeds than formerly.

The principal crops raised in the county are wheat, corn, hay, oats, potatoes and tobacco.

Of wheat there was a large acreage sown, with a good yield, and first-rate quality. The Fultz, Clawson and White Mediterranean were the principal kinds sown, with the first-named largely in excess of the other varieties. The successful wheat crops of the past three years have much encouraged our farmers, and provided a large surplus for sale and shipment, while the seasons have been favorable, and no insects ravaging their crops. Our farmers have made profitable investments in different kinds of fertilizers for enriching their lands, which have enabled them to produce larger and better crops of wheat than heretofore. It is believed that fully three hundred tons of bone dust or phosphates have been used in this county during the past season.

The corn crop was extraordinarily large, well matured, and of splendid yield—better than for many years. The production was so great that, in many places, a great deal has not yet been husked; occasioned, in part, by the winter setting in so early.

The hay crop was short, but of good quality. A surplus was left over from the past two years, which will help out very materially in our needs in this particular.

The oats crop was a comparative failure last season, and is not a very reliable one at any time.

A very considerable amount of tobacco is raised in this county, particularly on the west side of the Muskingum river, and affords lucrative employment to many of our people.

Irish potatoes are an important crop in this county, and generally yield well. The last season's crop was not an exception to this rule. The white Peach-blow is the general favorite for late fall potatoes and winter supply.

The fruit crop in this county during the past season was immense, and of unusually good quality and great variety. Apples, peaches, plums, pears, cherries, and the smaller fruits were in great abundance, perfect, and of fine appearance and of good flavor. Morgan county has many good orchards, and her hills are well adapted for fruit raising. The display of fruit at our fair was unusually large and fine, and elicited much commendation from visitors and fruit-growers in attendance.

Our society is in a flourishing condition, with good prospects for the future. The receipts of the past year exceeded the expenses some six or seven hundred dollars, enabling us to apply about $650 to our indebtedness, which will reduce the same to about $1,100. Our grounds and improvements are in good condition, and situated on the east bank of the Muskingum river, overlooking that beautiful stream. We find our situation and view to compare favorably with those of wealthier societies and more favored localities.

MORROW COUNTY.

The Thirtieth Annual Fair of the Morrow County Agricultural Society was held September 21, 22, 23 and 24, on the Fair Grounds of Mt. Gilead, Ohio. Never, in the history of the organization, was there more interest manifested by the united efforts of the sixteen managers, one from each township, with the assistance of the President and Vice-President, and other officers, and the people generally. It far exceeded any previous exhibition, both financially and in interest.

The principal crops raised in the county are wheat, corn, oats, hay and potatoes. The season was favorable to wheat. The corn crop was more than an average crop. Hay was very good in quality, but a light crop. Oats was a light crop, but good what there was. Clover crop was very light.

Great improvements in live stock have been made of late. For draft horses, Clydesdale, Norman and Percheron are in the lead. Abdallah, Ethan Allen and Hambletonians are preferred for light horses.

The principal breeds in cattle are Shorthorns and Jersey.

The principal breeds of sheep are Spanish Merinos and Cotswold. Sheep are extensively bred, and the wools compare most favorably in quality and quantity with any in the State.

Poland China, Berkshire, Chester White and Jersey Red are theswine most in favor, the latter just introduced for experiment. Poland China are taking the lead in this county.

Tile-draining is extensively practiced, and, it is claimed, with great and good results, especially in low, flat lands. There are four tile factories in the county, pro ducing about from 45,000 to 50,000 rods per annum, and the demand is still growing.

The fruit crop was more than an average for apples. Peach and pear crops were light, caused by the late frosts. The fruit crop here is generally good.

Our timber is burr-oak, walnut, ash, sugar and beech. Walnut lumber has been bought by shippers, and shipped, principally.

The county is well watered for stock, as a general thing. Also, good springs and wells for family use.

The soil of the county, in the eastern part, is rather rolling and gravelly, and clay soil. The western part is level, with a deep soil.

We have in our county at this time two railroads, the C., C., C. & I. railroad running through the county from the north to the south, two miles west of the county seat, with a short line railroad from the C., C., C. & I. R. R. to our county seat. We also have the O. C. R. R. running through the county from the south-east to the north-west, the last-named road passing through the western part of the county seat. We also have enough hotels to accommodate all who may wish to visit our county during the fair.

The society has been to a great deal of expense during the last year, in the erection of new stalls for horses and cattle; also, in erecting a large and fine Floral Hall.

MUSKINGUM COUNTY.

The Muskingum County Agricultural Society held its Thirty-fourth Annual Fair on September 7th, 8th, 9th, and 10th, 1880, on its beautiful grounds near Zanesville. The fair, as is usual with all the later fairs held under the auspices of this society, was a success financially and practically. While the society is compelled, by extensive advertising and the offering of special attractions and inducements, to labor hard in order to induce a large attendance of the masses of the people, yet the attendance and interest on the part of exhibiters, and those who attend fairs for the purpose of increasing their knowledge of all agricultural improvements, is constantly and steadily on the increase. Our fair of 1880 was distinguished by a larger display of vegetables, grain, poultry, and agricultural implements than on any former occasion, while the display of live stock was about up to the average of former years. The receipts of the fair were sufficient to pay all the current expenses, repairs, improvements, and premiums; and while the society does not enter upon the new year with a heavy bank balance, it is consoling to know that it has no liabilities which it cannot meet with cash; and is the absolute owner of its fair grounds and improvements. Extensive improvements are in contemplation, which, when accomplished, will make the Muskingum fair grounds second to none in the State.

The agriculturists of Muskingum county rejoice in a successful and prosperous year, and look upon the results of their toil with great satisfaction. It has been a year of unusual prosperity. All the staple crops, such as corn, wheat, oats, potatoes, and hay, with the exception, perhaps, of potatoes, have yielded abundantly, and have met with good sales at fair prices.

The yield of potatoes was not up to the average, owing largely to the ravages of the Colorado beetle, for which no adequate remedy has yet been provided.

The corn yield was unexceptionally good, the farmers meeting with greater success than in the former year, when they had such great difficulty in getting their seed to grow.

Immense crops of wheat and hay were harvested, and the wheat sown this fall will cover a much greater acreage than that of the previous year.

Our farmers have shown great interest in the improvement in agricultural implements, and are in possession of the best in the market.

The year 1880 was a great fruit year in Muskingum county, the apple crop, especially, yielding a great abundance. As the prices, in consequence of the great abundance, was very low—not averaging over twenty-five cents per bushel—a great deal of cider was made and sold for drinking purposes, and for the manufacture of vinegar.

The peach crop did not amount to a great deal, although some excellent peaches were grown by our fruit men.

As a vegetable market, the city of Zanesville stands high, and, in consequence, a great deal of attention is given to market gardening, the rich river bottoms of the Muskingum Valley affording excellent opportunities for the skilled gardener. The gardeners not only supply the local market, but also ship large quantities of vegetables to the surrounding towns and cities. Among the vegetables which have proved very profitable may be mentioned asparagus, celery, peas, and melons.

The stock men are still industriously studying to improve the stock of the county, with no small success. The past year has witnessed much improvement in this respect. The Shorthorns still take the lead, while the Devons still have their friends and admirers, and the Jerseys seem to give satisfaction to a few fancy breeders, who get big prices for their calves, and seem to find plenty of customers for all they can produce.

In the production of hogs for the market, this county still holds her own, and continues to ship a great many, while several packers find it profitable to kill and cure a large number at Zanesville.

The interest in tile-drainage is on the increase, and is doing much to develop and bring into use hitherto unprofitable land.

Our farmers and gardeners are using a great deal of artificial manure, which finds a ready sale at this point, and a great deal of experimenting is going on to determine which is best, and the proper use to be made of it.

The work of the farmer is taking a higher grade among our people, and very many of our most influential and wealthy men are numbered among those in our community who honor themselves by engaging in the first grand occupation given by God to man—the tillage of the soil.

NOBLE COUNTY.

The principal crops of this county are corn, wheat, oats, tobacco and potatoes; as also fruits, namely, apples, peaches, and small fruits, plums, cherries and grapes.

Of corn the crop for 1880 was much larger than usual. The acreage was larger than previous years, and an average of about thirty-five bushels per acre.

Wheat—crop good. Average per acre, about sixteen bushels.

Oats—crop very small. Average about twenty-five bushels per acre.

Tobacco—not quite up to the average. Quality exceedingly good.

Potatoes—crop about the average. Quality good.

Apples—the largest ever produced in the county. As also peaches, plums, cherries, grapes, etc., and of good quality.

Hay crop—moderally light, and of very good quality.

No material damage done to the above crops by insects.

OTTAWA COUNTY.

The Ottawa County Fair was held on the 6th, 7th and 8th of October. The weather was favorable, the departments were all well filled, and the exhibition was the best in many respects ever held by the society.

There were no saloons nor gambling institutions of any kind allowed on the grounds, and we hope, for the good of the public, that the time will soon come when these soul-destroying institutions of the Devil will be entirely excluded from all the fairs in our State. Although the managers were quite successful in securing a fine exhibition, yet they failed, as usual, to get the mass of the people sufficiently interested to attend and make our fair a success financially. The prospects are that we will have to resort to a more liberal use of printers' ink, balloon ascensions, chariot and bicycle races, etc., to attract the people. The diversified occupations of our inhabitants tend largely, undoubtedly, to their lack of interest in our Agricultural Society.

The society's annual excursion was given on Thursday, July 22. A steamboat was chartered to convey the people to Middle Bass and Put-in-Bay Islands. The day was an extremely pleasant one, and nothing occurred to mar the pleasure of any.

The society organized a trotting association, and held their races on the 5th and 6th of August. There were quite a number of horses that competed for the purses. The attendance was not large, but the experiment proved profitable to the society.

The past season has been one of universal prosperity. The yield of wheat and corn was the greatest ever grown in the county. The oat crop was rather light, but the hay crop was large. There were not enough potatoes grown to supply the home demand.

The apple crop was simply immense. Cider and drying apples sold for ten cents a bushel, and winter apples for sixty cents a barrel. The Peninsula Fruit Company, located at Gypsum, evaporated great quantities of them, and thousands of bushels went to waste.

The crop of peaches was also very large. The early peaches sold cheap, but the late ones brought remunerative prices. Peach-growing is becoming popular among fruit-growers, and hundreds of acres are set out annually to peach-trees.

The yield of grapes throughout the county was not equal to that of last year; however, the yield on the Islands in Put-in-Bay township was the largest ever grown there, averaging three tons to the acre. The manufacturers of wine are continually enlarging their establishments. The casks in one cellar have a capacity of 4,000 gallons each. The cellars of one firm have a capacity of over 500,000 gallons, which are the largest in the United States. It is hardly necessary to say that the producing of such large quantities of wine has a demoralizing effect upon a great number of our inhabitants, and it is quite apparent that "wine is a mocker", and that many in our community are deceived thereby.

Our farmers continue to improve their stock. We have good horses, quite a sprinkling of Shorthorn cattle, and some Jerseys. Hogs of the Berkshire, Jersey Red, Poland China, and Chester White breeds, are bred in their purity. We also have registered and high grade Merino sheep, and numerous flocks of the long wool breed.

Wages are high, and laboring men can do well. The sailors, fishermen, lumbermen, gypsum, and stone quarrymen, manufactures of lime, and fruit-growers, all employ great numbers of men and pay high wages, and our farmers are obliged to pay in proportion for their help.

Since the fair, two of the most intelligent and prominent members of our society have died. Mr. L. Marshall died on the 29th of November. He had been Secretary of our fair two years, and was a director at the time of his death. Mr. S. A. Hardy died on the 7th of December. He had been President of the society, and a director for eight or ten years. They were both wide-awake, public-spirited men, and their death is a great loss to our society, as well as to the community in general.

PERRY COUNTY.

The 12th agricultural fair of this county was held September 28th to October 1st, inclusive, on the fair grounds near New Lexington, and was a finer success than we could have expected under the circumstances, from the fact that there was a coal-miners' strike in the southern part of the county, and the military were called out to suppress the riots only a few days before the commencement of the fair; and through the excitement the minds of the people were diverted from the fair; and yet we have nothing specially to complain of, for the attendance was large and the entries were many.

The horse and cattle departments were filled to overflowing with the finest horses, and largest herds of the best blooded-cattle that have been shown on the grounds. The sheep department was well filled with fine sheep, and would be creditable to any county. The showing of swine was small, but were good; and, for the first time in the history of our fairs, we had a grand parade of stock around our fine half-mile track, preceded by one of the finest brass bands, of 22 pieces; which was very attractive and interesting.

The agricultural department was excellent—all kinds of grain-seeds, vegetables, fruits, and canned fruits, of which one exhibiter alone made more than sixty entries.

The exhibition of agricultural machinery and farm implements, wagons and buggies, of home manufacture, would be hard to excel.

The exhibits of floral and fine arts were below many other fairs in the country, largely for the want of better halls, and yet the showing in this department was quite commendable.

The wheat crop this year is good in quality, with few exceptions, and in acreage and quantity is far in excess of many former years, attributable to a more intelligent and scientific mode of farming, and the use of commercial fertilizers, of which there have been more than one hundred tons shipped to this point and sowed. A few years ago many of our farmers would say, the fertilizers cost too much; we can not afford to buy it; and now they say, we do not want to sow much wheat if we cannot get the fertilizer. Many have increased their yields of wheat from 8 to 20, and in some instances over thirty bushels per acre, by the use of the best fertilizers; hence, many are raising wheat to profit, that a few years ago didn't raise enough for their own consumption.

The corn crop this year is the best that has been raised here for many years. Oats a poor crop, and not many raised for many years. There is but little rye, barley and buckwheat raised in this locality. The potato crop this year is fair. The hay crop was not the best, the month of May being too dry. Our land does not produce as much hay as some sections report; our best hay crops would not average four tons to the acre. The varieties of wheat raised in this locality are the Mediterranean, Pennsylvania Red, Weak's White, Fultz, and Clawson. The two last-named are the most prolific; but not considered the best for good flour and good bread—both the Clawson and the Fultz containing too much starch and too little gluten—especially the Clawson is considered a very inferior variety.

The apple and peach crops were plentiful, and good quality. Plums a very light crop. Grapes were not as plentiful and good in quality as some former years.

It was remarked by a gentleman of close observation and large experience as a horticulturist, agriculturist, and stock-raiser, at the time we were organizing our county fair, that we were fifty years behind the times. And while his remarks were quite true, it is equally true now that the advance in agriculture, and the improvement in the propagation of better blooded-stock of all kinds, is very apparent to any ordinary observer—and, best of all, it has proved profitable to the farmer and stock-raiser; and, most assuredly, it is attributable to a well-organized county agricultural society under the State law.

From the fact that the society has negotiated with the County Commissioners a lease for twenty years, or as long as used, for a fair ground—the beautiful grounds now used, and was entirely out of debt, it was thought best to make some permanent improvements, which was done in the building of new offices, entrance and exit gates, and closets, to the amount of a few hundred dollars, which is paid for, and all premiums paid in full—leaving the society in debt a little over one hundred dollars, as the Secretary's footings will show. It is the purpose of the Board of Managers that, with good weather, to so manage the interest of the society that it will be self-sustaining, with the aid received from the State Board, and keep out of debt.

The Society has a fine half-mile track on the grounds, on which the finest trials of speed or trotting were had this year that have ever been on the track, and it does not cost the society much money, except keeping the track in order. And it is thought that to let the track go by default, and ignore the trial of speed, would lessen the cash receipts, and our fair would be less attractive.

The coal fields in the southern part of the county are fast being developed—shafts sunk, coal mined and shipped, and iron ore made into iron—all bringing in return a large amount of money, with which thousands of the hard sons of toil are paid good wages for their labor, and the farmers get the highest prices for all the surplus they have to sell.

Our timbers are oak, hickory, beech, elm, maple, sycamore, and some black walnut, which are all becoming scarce.

PORTAGE COUNTY.

The society held its Thirty-fourth Annual Fair at Ravenna, September 21st to 24th, inclusive—four days. The weather was good and attendance large. Entries, 1,415—not quite up to the number of last year.

In the main hall the show was very fine, especially of fruits, it being probably the largest and finest ever shown in the county. Of horses, cattle and sheep, it was above an average. But one of the principal attractions was our new power hall, which has been built the past season, and fitted up with shafting and steam-power suitable for running agricultural and other machinery, which gave great satisfaction to exhibiters, and, when running, made things lively, and was one of the principal attractions.

During the past year we have repainted our main hall, built a large and convenient power hall, and made improvements to the value of over six hundred dollars.

Last year we tried the experiment of a four days' fair, and liberal premiums for trotting, neither of which proved a success, and it appears to be the opinion of the friends of the society that three days are enough, and that trials of speed had best be managed by trotting associations.

The crops in this county have, perhaps, been a little below an average. Of wheat it was the largest and best ever grown. Hay, oats, and corn below an average. Apples, very large; and of dairy products, large, and good prices; and on the whole, the farmers are enjoying more than an average degree of prosperity.

PREBLE COUNTY.

The Board of Managers of the Preble County Agricultural Society beg leave to make this, their twenty-ninth annual report.

We feel that we have reason to congratulate ourselves on the prospect of the increased prosperity and usefulness of the society. Our annual fair was held on the 28th, 29th, and 30th of September and 1st of October. The weather was inclement on the two first days, but turned out fine on the two last days. The attendance was large, and the fair a decided success.

The show of stock of all kinds was good. The Board made considerable improvements on the fair grounds, by the erection of more elevated seats, and a new floral hall, at a cost of about one thousand dollars, and we now have seating capacity for about 4,000 on our elevated seats, which give a splendid view of the race track. We now have two good halls, and three not so good. Our track is as good as any in the State.

Wheat is the staple product of the county, with a fair proportion of corn, oats, hay, barley, potatoes and tobacco. Tobacco is fast becoming one of the leading products of the county, and, if the increase continues as it has for the past four or five years, the sale of tobacco will bring as much wealth to the county as any other product of the soil. We had a fine display of fruits of all kinds at our fair. Apples were good, and a fair crop. Peaches were next to an entire failure, owing to the orchards being frozen out some two years ago, though what trees were living had a good crop of fruit. The wheat and corn crops were good—over an average yield.

We flatter ourselves that in another year we will be able to pay the small debt we are now under, and have money to make other improvements needed on our grounds.

PUTNAM COUNTY.

Putnam county is truly an agricultural county. Our principal crops are wheat, corn, oats, hay, clover-seed, potatoes, onions, and the various varieties of fruits grown in this latitude.

Our wheat crop for the year 1880 is perhaps the largest ever produced in the county—even greater than the crop of 1879, from the increased acreage. While, perhaps, the average per acre is hardly equal to that of 1879, yet the increase in the breadth of land sown will make the aggregate crop exceed the preceding year.

Our crop is the largest ever produced in the county. The season was very favorable. There was no time during the season when the crop suffered, either from too much or too little rain; no injury from worms or other insects.

As to oats, we have nothing to report, except that for some cause, which I am unable to name, the crop was a failure, the failure being mainly in the filling of the grain (a fair crop of straw, but not much oats).

The hay crop, both of clover and timothy, was below an average, but what was lacking in quantity was largely made up in quality. As to clover-seed, we can report a good crop, which adds materially to the value of our agricultural productions, as our farmers very generally make a crop of seed from the lands used for early pasture, or mown for clover hay.

Our potato crop has been a good one, especially on the prairie or swamp-lands, which, after having been thoroughly drained, seem to be wonderfully adapted to the growing of potatoes and onions, which are also largely cultivated on these loam-lands, and produce enormous crops, thus making the exportation of potatoes and onions from our county to other markets very considerable, adding largely to the value of our annual productions.

Fruits, such as apples, peaches, and grapes, were abundant, and of superior quality. As to other varieties, we have nothing special to mention.

The soil of Putnam county is principally black-loam, with clay sub-soil, with gravel or sand ridges extending through the entire county from east to south-west, and some three miles south of the Blanchard fork of the Auglaize river, which also extends from the eastern to the western boundaries of our county. Also, north of the river, we have two extensive gravel ridges, which afford a fair quality of gravel for macadamizing our roads, in which our people are moving with considerable enterprise, we now having completed and under contract something near a hundred miles of gravel or macadamized roads.

The Putnam County Agricultural Society held their Twenty-fifth Annual Fair at Ottawa, on the 6th, 7th, 8th, and 9th of October, 1880. The fair was decidedly the best, both in the quality of the exhibits and in the matter of interest of our people in attending, ever held in the history of the society. The entries, though not as numerous as some other years, were more generally distributed in the various departments—fully representing all the agricultural interests of the county.

The society offered a largely-increased premium list, and our people responded heartily, so that we were able to pay our premiums in full, and incidental expenses attending the fair, besides paying over five hundred dollars towards permanent improvements in making a new speed track, a full half-mile, and digging and walling well, etc., so that we may say that our society is prosperous, and hopes to maintain her advanced ground, and continue to merit the support of our people.

Let me close by saying that Putnam county presents a cheerful outlook in regard to her agricultural interests, and we feel that the day is not far distant when she will rank among the first in the State in her yearly productions.

RICHLAND COUNTY.

The Sixth Annual Fair of the Richland County Agricultural Society was held at Mansfield, September 28, 29, 30, and October 1. The weather was fair and the attendance large, being the most successful fair ever held. The society own no grounds, but have grounds leased, and are out of debt.

Wheat, oats, corn, rye and barley are the grains, wheat and oats being the most grown. The wheat crop was the largest ever grown, no insects injuring it. Quality good, although in some localities it was injured by smut, slightly. Much attention is being given now to the sowing of commercial fertilizers with the wheat, which appears to increase the quantity and improve the quality.

The oats crop was an average one, but owing to the price they bring in market the acreage has been less.

The crop of corn, has been above the average; the quality good, but not more is grown than is used for home consumption.

The crop of barley and rye was an average one, but the acreage is less, owing to the fact that farmers have become more interested in the growth of wheat.

The potato crop was injured in some localities by the potato-bug, although the crop was fair and the quality good.

The hay crop was below the average, owing to cold, dry weather in the early part of the season, but the quality was good. The acreage is less, for the same reason given above, under barley and rye.

For clover-seed the average is not large, but the yield was good and the quality excellent.

Flax-seed, not much sown, but the yield was good.

The fruit crop was large, especially the apple crop, and the quality good. Farmers are very energetic in keeping up the orchards and improving the quality, which makes a large surplus in fruit-growing seasons.

The peach crop was fair, but owing to the uncertainty of the crop, the orchards are being much neglected.

Grape-growing promised a few years ago to become quite a business, but owing to the blight, or grape-rot, the planting of new vineyards has been considered not profitable.

The cultivation of berries is receiving attention from farmers living near our home markets. The crop this season was an average one in quantity and quality.

There are four tile-factories in our county, and the subject of tile-draining is receiving much attention, and a large amount of tile is being laid. Parties that are doing the most at it are claiming from twenty to thirty per cent. on their investment.

Our county is well timbered, the principal timbers being oak, poplar, walnut, chestnut, ash, maple, hard and soft; hickory, ash and beech. There is abundance of timber yet in our county, but owing to the numerous railroads and the large demand for ties, the quality of timber suitable for them is being rapidly exhausted. However, our principal towns are using coal, which is a great saving of timber that would otherwise be used for fuel.

The breeding of French and Norman horses is receiving the attention of breeders, such horses meeting with ready sale and good prices. Roadsters and track horses are also receiving attention, there being quite a number of breeders of that class with us.

Owing to the fact that our county is better adapted to the growing of grain than pasture, the cattle business has been much neglected; but lately it has been receiving considerable attention, and our stock of cattle is being much improved. The Shorthorns seem to attract the most attention. Ayreshires and Holsteins are being introduced.

Owing to the decline in prices of wool, and the terrible slaughtering of sheep by dogs, the growing of wool and raising sheep has declined the past ten years; but since the advance in wool and the tax imposed on dogs for the benefit of wool-growers, the business has again become active, and farmers are trying to increase their flocks and improve the quality. The breeds most taken after are the Merinos and Cotswold, with the preference in favor of the former at present.

A great degree of interest is manifested in the raising of swine, although the prices paid for fatted pork have not been profitable, considering the price of corn, which ranges from forty to sixty cents; yet, while there has been a marked falling off in number, the farmers are active in trying to improve the quality. The principal kinds are the Berkshire, Poland China and Chester White. Some Jersey Reds are being introduced, and have some admirers.

Taking it all in all, the agricultural interest in our county is on the increase; business is active, improvements are being pushed forward, and the coming year must certainly be one of increased activity.

ROSS COUNTY.

The society held its Eleventh Annual Fair at Chillicothe, on August 10, 11, 12 and 13. The weather was fine, and the exhibition and attendance was large—in fact, the largest in both respects that we have had for years. Especially was it so regarding the manufacturers' department and the speed ring. As to the former, it was one net-work of machinery for a space covering about an acre—mowing-machines, reapers, self-binders and threshing-machines—all in motion, and the hum of their wheels attracted the attention of thousands of visitors.

To show how completely this Fair has outstripped all others for several years back, it is only necessary to recapitulate. Four years ago the receipts fell considerably short of enough to pay out. The year following about two hundred dollars were left in the treasury, but this was so close that the managers were very timid about taking the chances again. Last year a number of gentlemen clubbed together and agreed to take the risk and make up the loss, if any, or share the profits if the society came out ahead. At that Fair the society did remarkably well, and after compensating those who stood between the society and a lean treasury, there was still $50 left. With this as a nest egg, so to speak, the society again went to work with greater zeal than ever, and having called the newspapers to their assistance, determined to astonish the natives. The result is, the society is probably as greatly astonished as other people.

From all sources the entire receipts last year, that accrued to the society, aggregated about $4,200. This year the receipts from the same sources will reach very nearly or quite $6,000. When the income reaches $8,000 then Old Ross can look up and smile on the neighboring counties; and it must reach that figure next year.

The following statistics will be pondered over, with a great deal of interest, and especially by those who have chaffed because too much attention has been given the horse department.

Cash received from all departments, except speed ring, $420.80; paid on premiums in all departments, except speed ring, $1,550.

Cash received for entries in speed ring, $1,360. Premiums paid in speed ring department, $1,650.

Receipts from cattle entries, $100.50. Premiums paid to same, $325.

Highest gate receipts for one day, $1,809.

Gate receipts $3,300. Last year $2,600.

A peculiar feature about this Fair is the fact that the aggregate entries are about the same as last year, but in some departments there is a marvelous difference. The horse entries were much greater than heretofore, and in the line of agricultural implements there has been simply a revolution.

Our society this year numbers 223 members, a falling off from last year of fifty members. This decrease has occurred through pure neglect in not paying in their annual dues of $1.00 each.

Our last annual report gave an outline of the topography of our county and the principal crops grown. This report will therefore be limited to the productions of the county, and an approximation of the aggregate acreage and yield of the various crops.

Corn is our first staple. The number of acres planted was about 80,000; the yield 2,900,000 bushels. The average yield per acre was small. This is accounted for by the great amount of hill-farms we have in the county, which our farmers persist in plowing and planting in corn, when the yield from such lands does not pay the expense of raising the crop. For instance, a great many of these hill-farms will not produce more than five to ten bushels of corn to the acre, which brings down the average of our bottom land wonderfully. Such lands are only fit for sheep, and to grow fruit.

Wheat is our next crop in commercial importance. The acreage harvested this year was the largest ever known in the history of the county, to wit: about 45,000, and the aggregate yield about 750,000 bushels. The principal variety grown is the Fultz.

Potatoes stand as our third crop in importance. The number of acres planted was about 1,500; the yield 120,000 bushels. The varieties are White Peach-blow, Early Rose and Peerless. We still have the potato bugs, which continue to injure the potato interests very much.

The fruit crop of this county was large this year. There were probably fifteen or twenty thousand bushels of peaches shipped to foreign markets. Apples were abundant. The growing of small fruits, such as plums, grapes, strawberries, raspberries, and the like, has become quite extensive with our horticulturists. Although their cultivation requires more labor and attention than that of the apple and peach, yet the crop is more certain, and brings in a better return.

The live stock interests in the county are about the same as reported last year, with the exception of sheep, which have been largely increased during the year.

Our society, financially, is in good shape; out of debt, and, as you will see by the report of our Treasurer herewith submitted, a balance of several hundred dollars on hand.

SANDUSKY COUNTY.

The financial condition of the society has not been very much improved during the past year. We have been able to pay interest on all outstanding obligations, pay our premiums, and make permanent improvements to the amount of over eight hundred dollars. The bonded debt of the society remains unchanged so far as the principal is concerned, but as this is not large we have strong hopes of being able during the coming year to wipe it out entirely, after which we shall be able to make improvements in buildings, which the society is sadly in need of, especially a hall for mechanic arts and farm products.

We are led to entertain these hopes from the fact that there is an increasing interest manifesting itself from a very rich portion of the county, which has for several years taken no part whatever in the exhibition.

The exhibits this year were no larger in the aggregate than they have been during other years, but they have been very much finer in quality in all the departments. More especially is this true of the exhibits in stock, which would compare most favorably with many of the larger exhibitions held in Northern Ohio.

The attendance was smaller than usual, which was owing to the cold, wet weather during the first and second days and the forepart of the fourth day. The third day was all that could be desired, both as to weather and attendance, it being estimated that fully ten thousand persons were present.

The crops principally raised in this county are wheat, corn, oats, barley, buckwheat, rye, timothy and clover hay, and their seeds.

Horses, cattle, hogs, and sheep are raised in considerable numbers, and form no small part of the farmers' revenue.

In the matter of horses, our farmers are becoming more alive to the advantages of raising better breeds, some of the more enterprising having during the past year imported from France some splendid specimens of Norman stock, and the same is true of cattle. The splendid exhibition of Shorthorns at our last fair, made by stock-growers from adjoining counties, has had the effect of creating an interest in the better breeds, and convinced many of our farmers that grades and natives cannot compete successfully with the the finer specimens of Shorthorns and Devons.

Through President Hayes, a few specimens of Jersey cattle have been introduced into this county, and they are becoming quite popular among that portion of the community, who desire them only for the purposes for which they are most noted, viz., for cream and butter.

In swine raising, the Berkshire and Poland China are the leading varieties.

The display of poultry was far in advance of last year, both in quality and variety.

The display of fruit, grain, and vegetables, owing somewhat to the favorable season, was very fine and in great abundance.

The hall for the display of needle-work and works of art was not so well filled as in other years, but the articles displayed were of superior merit.

A very attractive spot on the grounds was the space allotted to agricultural implements, which was well filled with all the lately improved farm machinery, much of which was manufactured in our own county.

We feel now that our society is in a healthy, prosperous condition, and with good weather and proper management we will soon be out of debt, and then shall rapidly push to the front rank of county societies in every thing that will make our grounds beautiful and attractive.

SENECA COUNTY.

The Seneca County Agricultural Society held its Twenty-ninth Annual Fair on its grounds in Tiffin, September 28th, 29th, 30th, and October 1st, 1880. The weather was favorable, except the last day, which was rainy, and prevented our having a large attendance. Yet the fair was a success financially, the receipts being $3,905. The society has built during the year a permanent Art Hall and an amphitheater, at a cost of $3,000, for which the society is in debt yet, and also an additional standing debt of $2,000, making a standing debt of $5,000. The society will endeavor to have the indebtedness paid by taxation, if such can be obtained.

The exhibition in fruit, grain, and agricultural implements, also fine arts and paintings, excelled any previous exhibition, while the exhibit of cattle and horses was somewhat limited. The poultry interest has improved a great deal, there being

125 entries. Our society is in excellent condition, and its prospects for future usefulness highly satisfactory.

In the culture of wheat we stand pre-eminent, not only in acreage but also in quantity, the nature of our soil being such as to produce a quality excelled nowhere in the State. It is the farmers' staple product in Seneca county.

Tiling is resorted to wherever the land is low and swampy. Thus many acres have been utilized by process of tiling.

While farming is the leading pursuit, we are not forgetting the improvement of stock. Thoroughbred cattle are introduced now, and in several years the farmers will have improved their grade of stock 50 per cent.

More attention is paid to raising clover than formerly, both for hay and seed, and farmers are beginning to realize the value of this crop in enriching the soil.

SHELBY COUNTY.

The Twenty-first Annual Fair of the Shelby County Agricultural Institute was held on its grounds, near Sidney, on the 28th, 29th, and 30th days of September, and October 1st, 1880, and was a success as to its financial receipts. This will more fully appear by the exhibit of the Treasurer herewith presented, which reveals the fact that the total receipts from all sources, including a balance on hand, were $3,004.39 ; and the total payments were $2,976.26, leaving a balance in the treasury of $28.13. The Directory, deeming it advisable to increase the area of the grounds of the society, ventured, in the early part of the year, to purchase six and a half acres of land adjoining the grounds of the society, at a cost of $1,300, all of which was fortunately paid from the receipts of the last annual fair.

Although there were a goodly number of things connected with the late annual fair that were encouraging and calculated to flatter the officers and Directory, and allow them to infer that the interest in and good feeling towards the society was real, and a desire also that it should still continue to advance in usefulness and prosperity in the future, as in the past, still there were a few things connected with the late fair which were calculated to interfere very seriously with the success and prosperity of the society. The first matter, and the one which was most grievously felt, was the death of the acting President, S. Alexander Leckey. He had so long been identified with the society as an officer—that of Secretary and President—and his services so freely rendered for the advancement of the society, that his absence caused, in the large crowd in attendance, a general expression of regret that he was not on the grounds, as heretofore, to take the direction of the affairs of the exhibition. Although the non-presence of Mr. Leckey was severely felt, it did not apparently interfere with, or prevent the large attendance and the consequent increased receipts, since the very efficient Vice-President, Edmond E. Nutt, was untiring in his labors, and by his personal presence and efforts at all points, as well as in the direction of his numerous assistants, effected the end sought for by the officers and directors in this exhibition of the society.

It can be safely said that the future prospects of the society are decidedly flattering, and there need be no occasion for failure in any future exhibition, if the people of the county will aid and assist the Directory in its efforts to make the fair a necessity to the prosperity of the agricultural, mechanical, and industrial interests of the whole county of Shelby.

The accompanying report will show that the offer of premiums in the several classes, for the year 1880, was as liberal as in former years, and would compare favorably with those offered in the counties adjoining. The number of entries did not amount, in the aggregate, to that of last year. This was not caused by any fault of the Directory, or by any diminution in the sums offered as an inducement for the exhibiters of the articles or animals usually found in the premium-list, but in a want of interest shown by the people of the county in not making entries as in the past year, and in the fact that a disposition was manifested on the part of some persons to prophesy a comparative failure in the exhibition of 1880.

Notwithstanding the adverse circumstances, the number of entries in a few of the classes were much in advance of the previous year. In the matter of agricultural machines, the entries were abundant, recalling the display usually made at the State fair. In the exhibition of stoves, tinware, carriages, household furniture, and horses, there was no diminution from former years, but rather a large advance.

Under the adverse circumstances mentioned, the officers and directors have good reason to congratulate themselves on the degree of success which attended the exhibition of 1880. They sincerely hope that the future exhibitions may be attended with greater success than that of 1880.

It is still the opinion of those who claim to be properly advised, that the system of family tickets, which has been in existence since the organization of the society, should be abandoned, and the selling of single admission tickets substituted therefor, which, it is believed, would be of great financial advantage to the society. At the recent exhibition, the officers introduced coupon family tickets, which resulted in considerable benefit to the society financially, but still many persons interfered with the receipts of the society by gaining admission by untruthful representations. Persons, who, it is thought, would scorn to do a dishonest act in private life, or among their neighbors and acquaintances, seemed to think it not wrong to defraud the society by gaining admission to the grounds by false representations or downright falsehoods. It is believed that the single admission ticket system is the only correct one, and the one which will prevent, in a great measure, the constant annual imposition upon the society, and to its serious financial injury. It is thought that if no charge should be made for entries, and four or more admission tickets sold, to take the place of the family tickets, that there would be an increased success attending the future exhibitions of the society financially, as well as otherwise.

With more particular reference to the agricultural condition of the county, it may be said that in 1879 the number of acres sown in wheat were 34,212, and the bushels raised, 654,487, averaging 19 bushels. During the present year the acreage was at least ten per cent. more, while the yield of bushels was not greater than last year. The large yield of 1879 was unusual for this county.

The indications are that the growing crop will produce as much per acre as in

1879. Last year the acreage of rye was 302, and the bushels produced 4,057, an average of 13.4 bushels. The amount of acreage and yield of 1880, it is estimated, will not exceed that of 1879. Last year 228 acres of buckwheat was sown, yielding 2,722 bushels, an average of 12 bushels. The product for 1880 will likely be ten per cent. less. Of oats, in 1879, there were sown 13,065 acres, yielding 432,443 bushels, an average of 33 bushels. The acreage and yield of 1880 will not very materially differ from that of 1879. In 1879 there were sown of barley, 1,096 acres, and a production of 29,110 bushels, an average of 25½ bushels. The acreage and yield of the present year will not be more than that of last year. Of corn, in 1879, there were planted 41,180 acres, and the yield 1,367,021 bushels. The acreage of 1880 was greater, and the quality twenty per cent. better. In 1879 there were 7,924 acres of meadow, producing 7,860 tons of hay—not quite one ton per acre. The present year will not show an advance, but more likely a falling off. Of clover, there were 7,494 acres in 1879, yielding 3,673 bushels, an average of a half-bushel. The present year less attention has been paid, and consequently there will be less produced. In 1879 there were sown 3,978 acres of flax, and a production of 27,017 bushels, an average ot 7 bushels. Wheat, corn and oats are the principal cereals raised in the county, and receive more attention from our agriculturists than any other grain.

The live stock of the county consists of horses, cattle, sheep and hogs. In the matter of horses and cattle, there has not been a greater interest manifested than in 1879. The successful raising of sheep demands a great deal of attention and care. Being subject to divers complaints and diseases, it is a very difficult matter to insure a success in sheep-raising. A proper knowledge of this particular interest has not been attained generally among the people of the county, and consequently success is not achieved by all raisers. Those who are properly educated in this respect, have made sheep-raising a comparative success. The number of horses reported to be in the county in 1879 was 8,134; in 1880, 8,742; an increase of 708. Cattle, in 1879, 13,119; in 1880, 14,149; an increase of 1,030. Sheep, in 1879, 15,848; in 1880, 15,802; a decrease of 46. Hogs, in 1879, 24,207; in 1880, 28,859; an increase of 4,652.

The matter of the laying down of tile has received an increased impetus in the county during the last year, and consequently the yield of crops has been proportionally increased and the farms greatly improved thereby. Our agriculturists are also waking up to the very important matter of farm-buildings. Better dwelling-houses and barns are springing up all over the county, as if by magic, which speaks well for the intelligence of those who are engaged in agriculture. In connection with this, it may be mentioned that the large number of turnpikes now in use in the county has added very much to the welfare and stability of the county. Although they have cost the people a large sum of money, and in some cases have been quite burdensome, still, since they are finished, there is no one who for a moment would return to the mud-roads of former years.

On a review of the agricultural affairs of the county, it can be safely and truthfully said that there is very much encouragement in the out-look, and a reasonable expectation that Shelby county will not be found behind the older counties of the State.

STARK COUNTY.

The Thirty-first Annual Fair of the Stark County Agricultural Society was held September 28, 29, 30, and October 1, on the Fair Grounds at Canton. The weather during the fair was cold, and the attendance was somewhat diminished on that account on the first and second days; nevertheless, the attendance on the third and fourth days was very large. We had a very fine exhibition, which was up to the standard, with one exception.

The society had a few difficulties to contend with, a few weeks before the fair, that threatened to injure the exhibition greatly. The superintendent of grounds at that time discovered, one morning, on going to his labors, that the fence had been torn down, and one hundred men, with teams, plows and shovels, were tearing up the earth and destroying the race-course, and evidently intending to appropriate right-of-way sufficient to construct a railroad through one side of the grounds, whether the society consented or not. An injunction was served upon the officers of the road, and work stopped. But a suit in Court was the next thing to be the cause of a great annoyance to our officers, which terminated on the 23d of September, and a verdict of $1,500 was awarded for the ground and damages sustained. This caused the necessity of the erection of 900 feet of fence and the grading of a new race-course, to be completed in five days. Our Superintendent proved equal to the undertaking, and had all things ready for the opening on September 28, and the society now have a railroad on one side of their grounds, which conveys people to and from the grounds for a small amount, and in that way will be a benefit to the society and partly repay for the loss of one acre appropriated for that purpose.

The receipts were not quite equal to those of the year 1879. Large expenditures were made for permanent improvements, among which were the building of a new fence almost entirely around the grounds, and over onehundred new stalls, and the painting and whitewashing of floral and dining halls.

The decoration and exhibition in floral hall was the only thing that fell below the standard. Our Board intend enlarging their premium list in domestic articles and textile fabrics, and on other articles placed on exhibition in the hall, which will add to the display and beauty of our hall, which is now in a very fine condition.

The display in machinery was never finer, and Stark ranks among the foremost counties in her manufacturing interests, as well as in her agricultural. The number of railroads now centering in Canton, her county seat, and surrounded, as it is, with the vast coal fields and other minerals, will bring still more manufacturing industries that seek the places where cheap fuel and shipping facilities are to be found. Our mechanical industries expend millions of dollars annually in the production of various kinds of machinery for facilitating and lightening the labor in the agricultural, as well as many other classes of industries; and with these vast works already in operation, and more being located, the farmer finds ready sale and a good market for all things that he can produce.

The live stock department was never excelled; in fact, many persons who witnessed the parade of horses and cattle on the second and third days of the fair, said that they had never witnessed a better class of live stock at any former exhibition in our county. Stark may well feel proud of her fine thoroughbred horses, among which are to be found the Hambletonian, Norman, Percheron and Mohawk; and in her list of thoroughbred cattle are the Shorthorns, Jerseys, Ayrshires, Holsteins and Durhams. Her hogs consist of the Berkshires, Poland China and Chester Whites.

Our exhibition is confined to our own county, except in sweepstakes. This may look a little selfish, but as our own county produces as fine stock as is to be had anywhere, we deem it just to maintain strictly a county institution, and all visitors who come to see the various things on exhibition can rest assured they are viewing that which is raised or produced in our own county.

Our membership reached the number of 468 the present year, against that of 1,012 the preceding year. A brief explanation may be necessary to account for this falling off. Previous years, on payment of $1.00, a card of membership and six single admission tickets were given; and, as the single admission was twenty-five cents, many persons took advantage and bought memberships, and sold enough of them, and, in many cases, all of them, making fifty per cent. on the investment, and many succeeded in buying two and more and disposed of them, making a very handsome profit. This year the Board made a rule that only four single admission tickets would be given with the card of membership, and that checked the speculation, and, as a consequence, we have not as many members, while the society gained largely by making that change.

The following is a table showing the number of entries and awards of premiums in the various departments:

Departments.		No. of entries.	Amount awarded.
Shorthorns		28	$151 00
Durhams, Ayrshires, Holsteins, and other breeds		41	171 00
Fat cattle		7	58 00
Thoroughbred horses		21	126 00
Roadsters		21	79 00
General purpose and driving		98	306 00
Draft		36	154 00
Speed		14	170 00
Mules		3	5 00
Sheep		76	278 00
Hogs		70	269 00
Poultry		66	77 00
Mechanic arts, machinery, implements, etc		80	75 00
Farm products—grain, seeds, vegetables, butter, cheese, cakes, etc		301	259 00
Horticulture and Floriculture	Fruits	430	111 00
	Flowers	18	27 00
	Pickles, canned fruit, etc	28	22 50
Fine arts		30	13 00
Textile fabrics, needle work		38	40 00
Non-enumerated		67	....
Total		1,473	$2,391 50

The principal crops raised in our county are wheat, corn, oats, hay and potatoes. Never, in the history of our county, has the crop of wheat been larger and better than it has been the past season. The crops of corn and oats were also very large, while that of hay and potatoes were below the average. Very few of the crops the past season suffered with the ravages of the insect, and our farmers are all feeling well satisfied with the fruits of their labor.

SUMMIT COUNTY.

The Fair of the Summit County Agricultural Society was held on our new grounds, known as the Fountain Park, October 4th, 5th, 6th, 7th, and 8th, 1880. The weather during the time of the fair was all that we could ask — pleasant and delightful.

We now present our report for the 31st year since our organization as the Summit County Agricultural Society. Within the period of 31 years, township societies have done their work, and the Summit county fair association has done its work, and we now hold the field, and are recognized as one of the best county agricultural societies in the State.

The first day of our fair is devoted to the work of the Secretary and his assistants, in entering articles for premiums, etc., and no entrance fee is charged. Our object has always been to raise the standard of agriculture in our county, as also of manufactures, and every industrial and mercantile art or business that would tend to raise us above the common level of ordinary agricultural associations.

In the year 1849 the first fair was held in our county. Not a shed was built or a canvas tent placed for the protection of stock or of persons attending the fair. The Court-house was utilized as a floral hall and for the display of domestic manufactures. After this first exhibition at the Court-house, and on public grounds, grounds in what is now known as South Akron were leased, and on which for several years the fair was held, and afterwards removed to Gimlet Hill, and subsequently to the grounds known as the Hall Grounds. Four years since we bought the grounds we occupy, known as Fountain Park, and located within the city limits. These grounds are finely located in the valley of the Little Cuyahoga river, well watered; first, by a stream passing through the grounds, and second, by springs, which, by means of pipe, supply our fountains, numbering nine, within our grounds. Our race track, of one-half mile, is pronounced by horsemen one of the best in the State; and is fully evidenced by the fact that we have many of the best horses of the country to compete for awards offered.

Buildings.—We have upon our grounds a floral hall, 30 feet, octagonal in shape, and rustic in construction; mercantile hall, 40x100 feet, well lighted by sky-light windows, and well adapted to the purposes for which the same was assigned.

Second—officers' head-quarters, with a fine office, etc.

Third—dining hall, 40x80 feet, provided with all the necessary furniture and tableware.

Fourth—domestic hall, in which we always have a fine display of ladies' handiwork.

Fifth—agricultural hall, 40x80 feet, with fountain in the center, in which the farming industrial interests of the county are displayed.

Sixth—exhibition of farm implements, and in which was exhibited a full line of everything that a farmer can want, from a common plow up to the best and most effective seed drill, mower, reaper, and binder, as well as the contemplated twine binder, of the Buckeye Works. In a report of this kind it is impossible to enumerate everything that in justice should be mentioned; and should anything be overlooked, you will excuse the omission.

It is impossible to notice all matters of interest in relation to our fair of 1880; but that it was a success no one can doubt, as evidenced by the fact that on the third and fourth days of the fair there were from 15,000 to 18,000 people on the grounds.

Agricultural Implements.—We have as yet no building for the display of such implements; but a large space of shed room and open ground was assigned for the display, and every inch of space filled with the best manufactured. Among the exhibiters were F. Howard, plow manufacturer; —— Perkins, dealer in all kinds of implements; D. S. Alexander, the same, as also John Golden and others.

Stoves.—The display of stoves by Page Bros., Johant & Co., and others, was the best we ever had.

Mercantile Hall.—This building was filled, and not a foot of space left, with the finest and best variety of dry goods, notions, photographs, drawings, penmanship, musical instruments, boots and shoes, clothing, etc.

Domestic Hall.—Fully filled with all the handi-work of the ladies attendant upon the fair. To enumerate the articles on exhibition would take much space; and it is only justice to say, that every variety of female industry was fully represented, including all articles manufactured and used.

Floral Hall.—In this hall, which is furnished with a fine water-fountain, under the management of H. H. Brown, there was a full display, and the examining committee made their awards satisfactorily to all exhibiters, so far as we have learned.

Stables and Stock.—We have on our grounds one brick and one frame stable, with about nine double or box stalls in each, devoted exclusively to running horses. There are about one hundred single and double stalls devoted to horses and cattle, all of which were more than filled with the best of stock. Our pens for sheep and hogs were filled with the best exhibit ever made upon our grounds. A full display of poultry was on exhibition.

On the second day of our fair, Hon. W. I. Chamberlain, Secretary of the State Board of Agriculture, complimented us with one of the best addresses that was ever delivered on our grounds.

Receipts and Disbursements.—The receipts during the fair from all sources were $6,049—we expended during the season, in the improvement of our grounds, $1,500. Our premiums, now paid up, amounted to the sum of $2,250. Our floating debt is paid, as also the interest on our mortgage indebtedness for borrowed money.

The northern portion of our county is adapted more especially to grazing, and the business of dairying predominates—and yet since under-draining and high manuring has been resorted to, more wheat per acre on our northern clay soil is produced than in any other portion of our county—and our Secretary of the State Board, who some years since came into possession of one of the poorest farms in the county, now by high culture beats us all in the way of products. The south-eastern portion of the county is, agriculturally considered, purely grain-growing. The south-western and western portions of the county are devoted more than any other portion to growing of stock, and in the township of Norton we find the best class of horses; in the townships of Richfield, Copley and Bath the finest herds of cattle and flocks of sheep; and we fully realize these facts when, after each fair, our premiums are called for.

In speaking of the industries of the county, we present the following summary, most of which belongs to the city of Akron:

Establishments.	No. of employes.	Annual product.
Buckeye Mower and Reaper Works	450	$1,500,000
F. Schumacher, oatmeal, etc	100	1,000,000
Barber Match Company	450	1,000,000
Whitman & Barnes Mfg Co., knives and sickles	400	650,000
Akron Iron Company	175	600,000
Flouring Mills	90	1,250,000
Empire Mower and Reaper Works	120	450,000
Akron Rubber Works	115	350,000
Akron Steam Forge Co	50	300,000
Akron Strawboard Co	50	300,000
Taplin, Rice & Co., stoves, etc	120	275,000
Stone and yellow ware	1,000	250,000
G. F. Eberhard & Co., saddlery hardware, etc	50	200,000
Miller Chain Co	80	200,000
Akron Paper Co	70	160,000
Akron Sewer Pipe Co	100	150,000
Other sewer pipe mfrs	100	150,000
Wilhelm, Brodt & Co., packers	16	150,000
Kubler & Beck, varnishes, etc	12	125,000
Webster, Camp & Lane Machine Co	60	100,000
Printing houses	80	150,000
J. P. Alexander, fire brick, etc	40	100,000
J. H. Christy, leather	18	75,000
Baker, Merriam & Co., pipes, etc	50	75,000
Lumber manufactures	100	150,000
Brewing interest	25	100,000
Jas. Christy & Sons, leather	15	50,000
C. A. Collins & Son, carriages	30	50.000
Other carriage mfrs	40	60,000
J. C. McNeil, boilers	25	40,000
D. A. James & Co., wood-work	12	40,000
Building stone, etc	30	40,000
F. D. Howard, agricultural implements	16	25,000
Minor establishments	250	140,000
Grand total	4,339	$10,255,000

The industries of our county, both manufacturing and mechanical, are varied and extensive. As to the county, the greatest work is done in the manufacture of stone-ware and sewer-pipe, which is confined mostly to the townships of Springfield, Coventry and the Sixth Ward of Akron. In the city of Akron, in the year 1879, the manufacture of stone-ware amounted to over 7,000,000 gallons, and this amount will be increased by more than one-half, when we include the potteries outside of the city, making on a low basis at least 15,000,000 gallons. In addition to the foregoing, and making use entirely of the clays of our county, there was manufactured in 1879, $300,000 worth of sewer-pipe.

To this should be added from 5 to 10 per cent. increase for the year 1880. The wheat crop for the year 1880 sums up 719,880 bushels. There are in the county 1,834 acres more sown this year than for the year 1879. Our oat and potato crops the past year were not up to the average of former years. Corn crop good.

UNION COUNTY.

The Thirty-fourth Annual Exhibition of the Union County Agricultural Society was held at its grounds near Marysville, September 28th, 29th, 30th, and October 1st, 1880. The attendance was very large, and the interest very great, both among exhibiters and others.

The interest manifested in blooded horses and thoroughbred cattle was about the same as for the past three years, having received much attention from our best farmers and stock men for the three or four years just passed.

There has been a great movement forward in the sheep department, and the entries this year have exceeded by far any former year. For the two years just passed many of our sheep men have supplied themselves with the best Spanish Merino rams and ewes that could be obtained from the best flocks in Vermont and other Eastern States. As a consequence, the interest of our farmers is just now drawn from other departments, and especially that of swine to sheep. The exhibition in swine, however, was very creditable, and a large number of hogs of the Poland, Berkshire, and Chester Whites are raised in this county each year. A few Jersey Reds have lately been introduced.

There were but three entries in field crops. C. L. Amrine entered two and one-ninth ($2\frac{1}{9}$) acres of wheat, on which he raised seventy-eight bushels, and was awarded the first premium. A. D. Hoover, on one acre, raised one hundred and four bushels and fifty pounds of corn, and received the first premium. N. Howard raised on one acre ninety-three bushels and twenty pounds, and received the second premium.

The statements of the exhibiters of field crops are hereto attached, marked A, B, and C, respectively, from which it will be seen that the cost of raising the two and one-ninth acres of wheat was $20.75; of raising the acre of corn, taking the first premium, $11.20, and the second, $9.20.

The past season has been a good one in all respects relating to the farming interests, excepting the hay crop, which was unusually light, but of good quality.

The wheat crop was very large, and averaged about sixteen bushels to the acre throughout the county, and nothing occurred to injure the crop, and it was not disturbed by any kind of insect.

The corn crop, as usual in this county, was good, and yielded largely.

The only crop injured to any extent by insects was the potatoes, on which the Colorado beetle did some damage in the early part of the season, but, nevertheless, the yield was abundant, and the quality is good.

Our society is in a prosperous condition. Last year a large new art hall was erected, and other improvements in the way of smaller buildings, fences, and the like, were built, and the society is out of debt.

["A."]

Statement of Cost of Raising Crop of Wheat.

To 25 loads of manure	$4 00
3 days' plowing, harrowing, and drilling	7 50
3¼ bushels seed, at $1.00 per bushel	3 25
4 days' harvesting, at $1.50 per day	6 00

The soil was a heavy, black loam, and is well surface-drained, but has no underdraining.

The ground was plowed about eight inches deep on the 6th and 7th of September, and was well harrowed one way, and the seed drilled in on the 10th of September.

The manure used was ordinary barn-yard manure.

The seed was White Chaff Velvet, and drilled about three inches deep.

C. L. Amrine, being sworn, says he raised a crop of wheat, on the land measured by Wm. Staley, and that the product weighed by Wm. Hall and Wm. Staley was all raised on said land, and the above statement of cost of, and manner of cultivating, is, as he verily believes, correct.

Charles L. Amrine.

Sworn to by Chas. L. Amrine, this 30th day of October, 1880.

A. H. Beightler, *Notary Public.*

["B."]

State of Ohio, Union County, ss.:

A. D. Hoover, being duly sworn, says he raised a crop of 104 bushels and fifty pounds of corn on the land measured by James Hoover; that the product weighed, in the presence of James Hoover, was all raised on said land, and that the accompanying statement of the manner of cultivating and the cost is correct, to the best of his knowledge.

Sworn to before me this 2d day of November, A.D. 1880.

L. D. Wright, *Notary Public.*

Cost of Raising Crop.

¾ day plowing, at $2.50 per day	$1 90
¼ day harrowing, at $2.50 per day	65
½ day planting, at $1.25 per day	65
1 day cultivating, at $1.50 per day	1 50

1 day harvesting, at $2.00 per day	$2 00
3 days' gathering, at $1 50 per day	4 50
Total cost	$11 20

Said crop was raised on new land—first crop—in rich, black soil, under-drained. Seed planted the 28th day of May, 1880, and about three inches deep.

A. D. Hoover.
L. D. Wright,
Notary Public.

["C."]

The cost of raising the above one acre of corn.

To plowing and harrowing, at $2.50 per day	$2 50
planting, at $4.00 per day	50
seed $\frac{1}{5}$ bushel, at $1.00 per day	20
4 days' labor in cultivation, at $1.50 per day	6 00

Nathan Howard, being duly sworn, says he raised a crop of corn on the land measured by James Powers; that the product, weighed in the presence of John J. Diggins and Nathan Howard, was all raised on said land, and that the accompanying statement of the manner of cultivation and the cost is correct, to the best of his knowledge.

Sworn to before me, this 13th day of November, 1880.

A. Amerine, *Justice of the Peace.*

VAN WERT COUNTY.

The Annual Fair of the Van Wert County Agricultural Society was held on the society's grounds, on the 31st day of September, and the 1st and 2d days of October, 1880, and was in all respects the best fair of the society for the past three or four years.

The display of horses, cattle, sheep, and hogs, both in number of entries and in quality of stock, was much better than in former years, and especially in cattle and hogs, there being a large number of entries in both classes thoroughbreds.

The display of grain and vegetables was of good quality; excellent display of fruits, both in number of entries and quality. There were no entries of field crops.

The principal products of our county are wheat, corn, oats, potatoes, clover and timothy-seed; although there were but little of clover, timothy, or flax-seed raised the last year.

The wheat crop the past year will probably aggregate as much as last year, but the yield per acre is probably near twenty per cent. less than that of last year.

The corn crop will equal, if not exceed, that of last year, although injured to some extent in certain localities by drought.

Potatoes a little below a general average, being injured by the Colorado bugs. Oats crop light.

The farmers still continue the system of under-ground draining, which they find pays well. The amount of tile-draining done in the county during the year was considerable. Cannot tell the number of miles put in, but there has been quite a large amount.

The condition of our society is good, being nearly entirely out of debt, and with careful management the future of the society is good.

FINANCIAL EXHIBIT.

Receipts.

Amount in Treasury at last report	$13 15
Amount from gate and entrance fees	563 46
Amount rents and permits	55 00
Amount from other sources	729 12
Total receipts	$1,360 73

Disbursements.

Amount paid in premiums	$435 75	
Amount paid on real estate	552 21	
Amount paid for current expenes other than premiums	325 00	
Total expenses	$1,312 96	
Amount remaining in treasury		$47 77

WASHINGTON COUNTY.

The Twenty-ninth Annual Fair of the Washington County Agricultural and Mechanical Association was held on the beautiful grounds of the society, near the city of Marietta, September 29th and 30th, and October 1st, 1880.

The fair was the most successful, both in exhibits and financially, that the society has had for a number of years. For the past few years the people have manifested so little interest in the success of the society, that its friends felt apprehensive lest it would have to be discontinued entirely. One of the causes that brought about this result was, that there have been three other fairs held each year in the county, besides the county fair, since 1878—one at Lowell, ten miles distant from Marietta; one at Beverly, twenty miles distant, and one at Barlow, twelve miles from Marietta. And as many people are satisfied with attending but one fair in a year, many of those living in the neighborhoods of those other fairs, after attending one of them would not attend the county fair. In this way the attendance at the county fair was very much reduced, and the income of the society was thereby cut down to such an extent that it could not, after paying current expenses, pay the interest on its indebtedness and also the premiums in full each year.

The Board of Directors were determined this year to leave nothing undone that would in any way contribute to the attractiveness of the fair and make it a success. The efforts of the Board were earnestly seconded by the people, and the result was that the fair gave, probably, more general satisfaction than any previous one for some years past, and has reawakened a new interest in the association.

The Board spent a large sum of money in making repairs and improvements on the grounds. A power hall, the need of which has long been felt, was erected. Mr. Benj. Bragg furnished free of charge all the shafting that was needed, and an engine to run it. This proved quite an attractive feature, and the result was that we had the finest display of machinery that has ever been made in this county. Another *new* feature was an *old*-fashioned log-cabin erected on the grounds, with a New England kitchen in one part, and a relic-room in the other. This proved to be one of the greatest attractions on the grounds. In addition to these two new features there was still another, a beautiful flower pavilion.

The exhibition of horses was very good, the largest and best show being in the "all purpose" class. The cattle show was excellent, that in Shorthorns being the finest ever made in this county. This county can boast of as good sheep as any other in the State, and those on exhibition were from among the best in the county. The exhibition of hogs was not very large, but of very fine stock.

There was a fine display of farm machinery and implements. The display in all the other departments was good.

With the universally expressed desire on the part of the people to see the society prosper, the Directors feel assured that the fair for 1881 will far excel the one of 1880. They also feel confident that before another year passes they will have the society entirely out of debt, as an effort is now being made to raise the necessary funds.

CONDITION OF AGRICULTURE.

Wheat.—The improvements in agriculture in this county for several years past have been such that any one at all observing in the matter could readily notice the changed condition of things. There has been a great change in the manner of raising wheat. A few years ago many farmers almost gave up raising it; but now this is very much changed. In 1870 this county had 20,897 acres in wheat, which yielded 209,613 bushels, an average of 10.03 bushels to the acre. In 1880 it had, by the November estimate of the State Board of Agriculture, 41,697 acres, with a yield of 588,160 bushels, averaging 14.1 bushels to the acre. By this it will be seen that the number of acres cultivated has just about doubled in the past ten years, while the yield has nearly tripled, and the average per acre has increased about one-half.

In 1870, of the 22 counties constituting the Southern District, this county ranked eighth in number of acres cultivated, sixth in quantity produced, and eighth in average yield per acre. In 1880, compared with the same counties, it ranks fourth in number of acres cultivated, fourth in quantity produced, and fifth in average yield per acre.

The number of acres sown for 1881 will probably not be any larger, if as large, as that of 1880, for the following reasons: At first the drought delayed farmers in sowing, and after it did rain the wet weather delayed them some, so that considerable wheat was sown late, and the cold weather setting in soon after it was sown kept it from getting much of a start, and thereby left it in a poor condition to withstand the severe winter weather. Unless the winter and spring weather prove very favorable, the yield for 1881 will not be as large as that of 1880.

Drilling wheat is now very general throughout the county, and large quantities of commercial fertilizers are used each year with very satisfactory results. The practice now with the best farmers in the county in applying barn-yard manure in raising wheat is, to put it on after the ground is plowed and before the wheat is sown, and harrow it in thoroughly. This course in applying barn-yard manure produces the best results. A few years ago farmers generally plowed their corn ground before sowing the wheat, and the result was that wheat-raising on corn ground proved nearly a failure. The course now pursued by the best farmers is, to only harrow the ground, or to cultivate it very shallow, either with a cultivator or a double-shovel plow, and then drill the wheat. This course of putting in wheat on corn ground has proved very satisfactory.

The Fultz and Clawson are the two varieties that are generally grown in this county, the Fultz having given the best satisfaction, and being the kind generally grown. There is also another variety, known as the "Strain" wheat, which originated in this county, and is very much liked by those who have raised it.

Both the number of acres cultivated and the yield of 1880 was larger than that of 1879. In 1879 the drought in the forepart of the summer injured the crop considerably. The season of 1880 was more favorable and the yield was better, although that on low ground was considerably injured by rust.

Rye, buckwheat and barley are not much cultivated in this county.

Oats.—Oats are raised to a considerable extent, but mostly only for home consumption. In the past few years it has proven almost a failure, owing mostly to the drought in the months of May and June of each year. In 1870 there were 11,951 acres cultivated, which yielded 207,982 bushels; while in 1879 only 7,906 acres were cultivated, which yielded 120,574 bushels. While the raising of wheat in the past ten years in this county has largely increased, that of oats during the same period has decreased. Of the two, wheat is the best paying crop. The crop of 1880 was about the same as that of 1879.

Corn.—Corn constitutes an important crop in this county. Of the fourteen Ohio river counties, this is one of the best adapted to corn-raising; there are but three of the fourteen that report a higher average per acre. It has a river frontage on the Ohio river of some fifty miles. The Muskingum passes through it for a distance of about twenty-five miles. Then there are quite a number of other streams, such as the Little Muskingum, Paw Paw, Duck Creek, Rainbow Creek, the south and west Branches of Wolf Creek, Little Hocking, and some others, on the bottoms of which large quantities of corn are annually produced.

The number of acres cultivated in 1879 was 24,058; yield, 697,434 bushels; average per acre, 29 bushels. The season of 1880 was more favorable for corn in this county than that of 1879; and while the number of acres planted may not be much larger than that of 1879, the yield will, undoubtedly, be considerable larger.

Then last spring the farmers did not have the trouble with their seed-corn that they did the year before, and, consequently, did not have to replant much.

Irish Potatoes.—The number of acres cultivated in 1879 was 2,407; yield, 151,321 bushels. This county, compared with the fourteen Ohio river counties, ranked fourth in 1879 in the number of bushels produced. There has been an increase since 1870, both in the number of acres cultivated and in the number of bushels produced. The crop for 1880 will probably be somewhat larger than that of the previous year, as the season was more favorable, and the Colorado bug does not give much trouble now. The varieties generally cultivated are the Early Rose for early use, and the Peach-blow and Peerless for winter use.

Sweet Potatoes.—In the production of sweet potatoes this county ranks third in the State, only two other counties, Hamilton and Warren, producing larger quantities in 1879. In 1870 it produced 7,927 bushels; and in 1879, 14,323 bushels—just about doubling its product. Those raised in this county are of an excellent quality. Muskingum, Marietta and Belpre are the banner sweet potato townships in this county. The crop for 1880 will be about the same as that of the previous year.

Hay.—Compared with the other Ohio river counties, this ranks fourth in the production of hay. The number of acres cut in 1879 was 21,385; yield, 15,800 tons. This was a very light yield, owing to the drought during the month of May. The crop of 1880 was from 25 to 30 per cent. larger than that of the previous year, the season being far more favorable. In clover, the number of acres cut in 1879 was 2,596 acres; yield, 2,057 tons. Timothy is the kind generally raised for hay; 746 bushels of clover-seed were raised the previous year.

Butter and Cheese.—No very great change has taken place in the production of butter and cheese in the past ten years; the former averaging during that period about 625,000 pounds annually. The production of the latter has decreased since 1870; the number of pounds reported for 1879 was 10,295.

Sorghum.—In the production of sorghum syrup this county ranks fourth in the State. In 1879, from 521 acres cultivated, there were 40,851 gallons produced. The crop for 1880 will not vary much from that of the previous year.

Maple syrup and sugar are produced in small quantities. Most farmers have considered it more profitable to turn their sugar-tree groves into corn-fields and meadows.

Orchards.—In 1879 this county ranked second in the State in number of acres in orchards, and seventh in the number of bushels of fruit produced. The number reported for that year was 10,050 acres, only one other county, Wood, reporting a larger number. The yield of apples for 1879 was 181,872 bushels; peaches, 290, which was a very small crop. Notwithstanding that the seventeen-year locusts did considerable injury to the fruit-trees last spring, the crop of 1880 is better and larger than that of the previous year. Other fruits, such as cherries, pears and plums, are produced only for home consumption. Considerable interest has been manifested in this county in the cultivation of apples and peaches.

Grapes and Wine.—There has been quite an increase since 1870 in production of grapes and wine in this county. In that year, 28,937 pounds of grapes were gathered, while, in 1879, 104,727 pounds were gathered, an increase of 75,790 pounds. In

1870, 1,387 gallons of wine were pressed, against 8,020 in 1879. The crop of 1880 will be larger than that of the previous year, as the season was more favorable.

Tobacco.—In 1870 this county produced 1,157,375 pounds of tobacco from 1,230 acres. In 1872 it produced 2,293,367 pounds from 2,386 acres; in 1879, from 686 acres, 501,819 pounds were produced. While the cultivation of wheat has very much increased in this county, that of tobacco has somewhat decreased in the past few years.

LIVE STOCK.

Horses.—No very great improvement has been made in horse-breeding in this county in the past ten years, although some good has been accomplished in that direction. There are too many *cheap* stallions in the county. Some farmers think that $3.00 to $5.00 is all they can afford to pay for the service of a stallion. A few good Norman stallions have been brought into the county within the last three or four years; also, a fine Clydesdale was brought here a year ago. The Norman stock is received with the most favor. The horses that are shipped from this county mostly go to Baltimore. The number of horses reported for 1880 in this county is 8,099.

Cattle.—There are some very fine thoroughbred Shorthorn and Devon, as well as Jersey, cattle in this county, and their crosses on the common stock of the county have produced quite a marked change in that stock. Farmers are beginning to find out that it takes no more feed to keep good breeds than it does to keep poor breeds. Geo. R. Goddard and Geo. W. Coffman have the finest thoroughbred Shorthorns in the county. John Blake, Pemberton Palmer, and I. A. Ormiston are the leading Devon breeders. Messrs. Blake and Palmer exhibited a fine lot of Devons at the State Fair last fall, and carried away some of the premiums. There are some very fine Jerseys in the county. They are not bred for beef, but only for their milking qualities.

The number of cattle in the county, by the Assessors' returns for 1880, is 20,381, being about the same as that of 1870.

Sheep.—There has been more improvement in sheep-breeding in this county than in any other kind of stock in the past ten years. The number in the county during that period has increased some 20,000. The number reported for 1880, by the Assessors, is 64,186. Pounds of wool shorn in 1879, was 251,902. They are generally quite free from disease. The average yield of wool per sheep has been very much increased. The fine wool are the ones generally bred; there are not very many coarse or long wool sheep in the county.

Hogs.—The number of hogs raised in this county each year for several years past has not varied very much. The number returned by the Assessors last spring was 13,506. Poland China, Berkshire and Chester White, are the breeds generally raised in this county. Some Jersey Reds have also been introduced within the past two years, and are giving very good satisfaction. Hogs have been quite free from disease.

TIMBER.

The kinds of timber generally found in this county are, the several kinds of oak, hickory, yellow pine, poplar, black and white walnut, beech, maple, black locust, elm, ash, and some other kinds that are not of much importance. Portable sawmills have done considerable toward thinning out the timber in this county in the past twelve or fifteen years. Also large quantities of ties are being shipped away.

WOOD COUNTY.

The Wood County Agricultural Society held its Twenty-eighth Annual Fair at Tontogany, September 28th, 29th, 30th, and October 1st, 1880.

The first and second days, till noon, were occupied in making entries and arranging the various exhibits on the grounds. In the afternoon of the second day, committees were called and instructed in their duties.

Third day, committees examined stock, machinery, and everything on exhibition, and made their awards, but attached no cards. There was trotting in the afternoon. The books were returned by the committees of the several departments to the Superintendants in charge, and by them the premium cards were attached to animals and all articles receiving premiums, on the morning of the fourth day. The withholding the premium cards till the last day has a tendancy to bring out a larger crowd on that day, as every one is anxious to know what animals and articles received the premiums, as it is necessary to increase our receipts as much as possible by all legitimate means.

Wheels of fortune, lotteries, and all games of chance are not considered legitimate, and are kept off our fair grounds. It is also questionable if we are not, as *agricultural* societies, giving too much prominence to racing, as though that was the prime object of holding our fairs Racing men want about one-half of all premiums offered at our fairs given for fast horses. Of course we want good roadsters as well as draft horses, but the race-horse the farmer don't want, neither to raise nor use. As agriculturists, we had better pause and think before we go any farther in that direction, for, if that is the *object* of our societies, we had better disband. The law authorizing the formation of agricultural societies says, that we *shall* so regulate our premiums that the smallest farmer may have an equal chance with the largest producer. Do we do that when we make sweepstake and display premiums? We last year cut out all sweepstake and display premiums, and added that amount to the other premiums, and I heard no complaint, but it gave general satisfaction.

But to resume. The fourth day of the fair we had more racing, and in the afternoon a grand cavalcade of all premium stock. The amount of entries was larger than usual, and the exhibits very fine, but owing to unfavorable weather at the commencement of the fair, also the last day of the fair was very unfavorable on account of rain in forenoon, the receipts of the fair were not so large by several hundred dollars as they otherwise would have been; still the fair was a success all round.

The show of horses was good. Each year shows a marked improvement over the previous year. The show of cattle was fully up to that of previous years. We have a number of very fine herds of Shorthorns in our county.

Of hogs, we had a very fine display of Poland China and Berkshire, with a few Jersey Red and Suffolk.

Sheep—a good display of Leicester, Southdown, and Merino.

The poultry interest was fully represented, and some very fine birds on exhibition.

The display of wagons, buggies, and machinery was very fine. Domestic and floral hall was filled to overflowing, and showed many fine things and much taste in the arrangement.

The grain department was well filled, and samples good.

Fruit and vegetable hall was not so well filled as previous years, on account of all *display* premiums being cut off, but the samples were very fine. The best apples we ever had.

Potatoes fair, but not as large as some former years. The potato crop is a partial failure in this county. The tops of many kinds died in July when the tubers were not more than half-grown, without any apparent cause. The exhibit of pears, peaches, and grapes was not large, but specimens good.

Corn, wheat, oats, hay, potatoes and rye, are the principal crops raised, though there is some clover-seed, barley, buckwheat, flax and sorghum. Corn is still the leading crop, of which an immense quantity was raised, the past season being very favorable for our level county.

The wheat interest is fast gaining on corn, in this county, of which we have had three good crops in the last three years, though the last was not as good as the two former. Much of our wheat was killed in October, 1879, on sandy and mucky land, apparently by the drouth, it being very dry here in that month. It turned yellow and died; many fields becoming entirely bare that looked well the last of September. Yield about fifteen bushels per acre.

Oats—the yield poor and grain light; not more than half a crop.

Hay light; not more than half a crop, but saved in fine condition.

Clover-seed good, but not much raised in our county as yet. as this is the "Black Swamp" region, and the muck is so deep that in many places we can't get down to "hard-pan" with the plow, so we have seen but little need of clovering as yet.

Rye good, and considerable raised in western part of county.

The apple crop was the largest we have had for years.

Crops, on an average, were good and prices fair, and the farmer may well rejoice in the fruits of his labor.

Our county is high table-land, lying on the south side of the Maumee River; but few streams running through the county, so it all had to be ditched.

I will not at this time attempt to give the number of county ditches in this county, but say, they are counted by the hundred, and ranging in length from two or three miles to twenty-seven miles; and their cost is counted by hundreds of thousands of dollars. Since main outlet ditches have been cut through our county, under-draining is the order of the day, and there is an immense amount done each year, with the best of results. When our county becomes properly drained—and it is making rapid strides in that direction—it will be second to no county in the State in fertility of soil.

WYANDOT COUNTY.

The last Annual Fair of this Society was the most successful yet held, and a more general interest is manifested by the agricultural community than in former years. The fair was a decided success, both as an exhibition and financially. The society is still in debt, but is amply able to meet its maturing obligations and carry the remainder.

The past season has been one of bountiful crops. Wheat, corn, oats, and all cereals have matured fully, and yielded well. Hay short, and will be, so long as the wheat crop yields the results it does, or has, for the past few years to the farmer.

No insects or anything else has interfered with crops, and our farming community is in good spirits, independent, and happy.

COUNTY FAIRS, ETC.

COUNTY FAIRS IN OHIO FOR 1880.

County.	President.	Post-office.	Treasurer.	Post-office.
Allen	W. H. Boone	Lima	R. Mehaffey	Herring.
Ashtabula	Geo. E. Nettleton	Ashtabula	A. C. White	Jefferson.
Athens	Isaac Stanley	Athens	Jas. D. Brown	Athens.
Auglaize	A. C. Smith	Waynesfield	Theo. Dickman	Wapakoneta.
Belmont	A. T. McKelvey	St. Clairsville	C. W. Carroll	St. Clairsville.
Brown	J. P. Richards	Georgetown	E. F. Blair	Geogetown.
Butler	Jas. Giffen	Hamilton	Wm. Pfau	Hamilton.
Carroll	D. B. Lee	Carrollton	C. G. Faucett	Carrollton.
Champaign	W. P. Foster	Urbana	Thos. McConnell	Urbana.
Clarke	J. T. R. Hazzard	Springfield	S. F. McGrew	Springfield.
Clermont				
Clinton	E. H. Matthews	New Vienna	C. N. Osborn	Wilmington.
Columbiana	John C. Smith	Wellsville	D. W. Firestone	New Lisbon.
Coshocton	J. S. Elliott	Coshocton	Joseph L. Rue	Coshocton.
Crawford	A. Monnett	Bucyrus	G. C. Gormly	Bucyrus.
Cuyahoga	T. W. Scott	Chagrin Falls	A. Williams	Chagrin Falls.
Darke	Thos. McCowan	Arcanum	Geo. W. Studabaker	Greenville.
Defiance	D. B. Turnbull	Defiance	Geo. W. Bechel	Defiance.
Delaware	L. P. McMaster	Leonardsburg	Chas. D. Potter	Delaware.
Erie	C. Caswell	Castalia	A. W. Prout, Jr.	Sandusky.
Fairfield	A. B. Gillett	Carroll	Sam'l J. Wolfe	Lancaster.
Fulton				
Gallia	Chas. D. Bailey	Gallipolis	John J. Pool	Gallipolis.
Geauga	Q. D. Millard	Huntsburg	J. S. Cleveland	Burton.
Greene	John B. Lucas	Xenia	David Miller	Xenia.
Guernsey	Dr. J. T. McPherson	Cambridge	Wm. A. Campbell	Cambridge.
Hamilton	Col. W. H. Hill	Sharonville		
Hancock	John Markel	Findlay	Henry Greer	Mt. Blanchard.
Hardin	Wm. A. Kelly	Kenton	R. L. Miller	Kenton.
Harrison	O. Semmons	Cadiz	W. C. Laisure	Cadiz.
Hocking	V. C. Stiers	Haydenville	Isaac Stiers	Logan.
Holmes	M. Beatty	Millersburg	H. H. Robinson	Millersburg.
Jackson	J. L. Long	Jackson	J. A. Sell	Coalton.

Jefferson	J. A. Kithcart	Smithfield	George Starr	Smithfield.
Knox	J. C. Levering	Levering	....	....
Lake	H. J. Manchester	Perry	G. A. Wilder	Painsville.
Lawrence	Wm. D. Kelly	Ironton	Jas. M. Kelly	Ironton.
Licking	M. M. Miller	Newark	J. W. Bigelow	Newark.
Logan	F. S. Case	Bellefontaine	F. R. McLaughlin	Bellefontaine.
Lorain	Wm. A. Braman	Elyria	E. G. Johnson	Elyria.
Mahoning	J. H. Sheilds	Canfield	H. A. Manchester	Canfield.
Marion	Amos H. Kling	Marion	P. Dombaugh	Marion.
Medina	A. L. Clapp	Chatham Center	R. M. McDowell	Medina.
Mercer	T. J. Godfrey	Celina	D. J. Roop	Celina.
Miami	M. W. Hayes	Troy	J. N. Price	Troy.
Monroe	J. P. Farquhar	Woodsfield	W. T. Morris	Woodsfield.
Morgan	J. A. C. Leland	Bristol	T. T. Nott	McConnelsville.
Morrow	M. Herrod	Mt. Gilead	John G. Russell	Mt. Gilead.
Muskingum	John M. Lane	Zanesville	Charles Gorsuch	West Zanesville.
Ottawa	E. Lattimore	Port Clinton	George E. Bliss	Port Clinton.
Paulding	C. L. Noble	Paulding	M. C. Powell	Paulding.
Perry	Sam'l Arnold	New Lexington	Joseph V. Word	New Lexington.
Pickaway	Dill Weigand	South Bloomfield	S. L. Grigsby	Circleville.
Portage	H. Y. Beebe	Ravenna	E. R. Ward	Ravenna.
Preble	John M. Daugherty	Eaton	W. C. B. M. Brookins	Eaton.
Putnam	J. Moffitt	Gilbou	Samuel Slauson	Ottawa.
Richland	M. Carter	Mansfield	M. D. Ward	Mansfield.
Ross	Jas. C. Foster	Higby's Station	Theo. Spetnagel	Chillicothe.
Sandusky	J. S. Green	Fremont	E. B. Moore	Fremont.
Seneca	N. L. Brewer	Tiffin	John M. Kaull	Tiffin.
Shelby	S. Alex. Leckey	Sidney	Chas. C. Weaver	Sidney.
Stark	Irvine C. Wales	Massillon	George D. Harter	Canton.
Summit	S. H. Pitkin	Akron	H. A. Peck	Talmadge.
Trumbull	A. Wheeler	Warren	P. L. Webb	Warren.
Tuscarawas	Dr. E. C. Lewis	Canal Dover	C. Sheeler	Canal Dover.
Union	D. Buxton	Marysville	Philip Snider	Marysville.
Van Wert	M. H. Morgan	Vanedocia	C. A. Melsheimer	Van Wert.
Warren	Sam'l Irons	Lebanon	....	....
Washington	F. J. Cutter	Marietta	Chas. H. Newton	Marietta.
Wayne	....	....	....	....
Wood	H. C. Strow	Milton Center.	S. W. Whitmore	Tontogany.
Wyandot	L. B. Harris	Upper Sandusky	Ed. A. Gorden	Upper Sandusky.

County Fairs in Ohio for 1880—Continued.

Counties.	Secretary.	Post-office.	Time of fair.	Place of fair.
Allen	S. Sanford	Lima	Sept. 28, 29, 30, and Oct. 1	Lima.
Ashtabula	E. J. Pinney	Jefferson	Sept. 22, 23, and 24	Jefferson.
Athens	H. C. Will	Athens	Oct. 6, 7, and 8	Athens.
Auglaize	S. W. McFarland	Wapakoneta	Oct. 5, 6, 7, and 8	Wapakoneta.
Belmont	J. B. Meyer	St. Clairsville	Sept. 15, 16, and 17	St. Clairsville.
Brown	W. H. Wilson	Georgetown	Oct. 5, 6, 7, and 8	Georgetown
Butler	C. Rothenbush	Hamilton	Oct. 4, 5, 6, 7, and 8	Hamilton.
Carroll	Geo. H. Aller	Carrollton	Oct. 5, 6, and 7	Carrollton.
Champaign	T. G. Keller	Urbana	Sept. 7, 8, 9, and 10	Urbana.
Clarke	L. B. Sprague	Springfield	Aug. 17, 18, 19, and 20	Springfield.
Clermont			Sept. 7, 8, 9, and 10	Boston.
Clinton	N. M. Linton	Wilmington	Sept. 7, 8, 9, and 10	Wilmington.
Columbiana	Geo. W. Armstrong	New Lisbon	Sept. 14, 15, and 16	New Lisbon.
Coshocton	L. W. Pocock	Coshocton	Sept. 21, 22, 23, 24, and 25	Coshocton.
Crawford	Ed. P. King	Bucyrus		
Cuyahoga	Lewie L. Pope	Chagrin Falls	Sept. 22, 23, and 24	Chagrin Falls.
Darke	Wm. Sullivan	Greenville	Sept. 21, 22, 23, and 24	Greenville.
Defiance	Elmer White	Defiance	Sept. 27, 28, 29, 30, and Oct. 1	Defiance.
Delaware	Chas. M. Jaynes	Delaware	Sept. 22, 23, and 24	Delaware.
Erie	Jno. T. Mack	Sandusky	Sept. 21, 22, 23, and 24	Sandusky.
Fairfield	Wm. Davidson	Lancaster	Oct. 13, 14, 15, and 16	Lancaster.
Fulton	David Ayers	Tedrow	Oct. 6, 7, and 8	Tedrow.
Gallia	Jno. C. Vanden	Gallipolis	Sept. 8, 9, 10, and 11	Gallipolis.
Geauga	P. W. Parmele	Burton	Sept. 15, 16, 17, and 18	Burton.
Greene	H. McQuiston	Xenia	Sept. 14, 15, and 16	Xenia.
Guernsey	C. P. B. Sarchet	Cambridge		Cambridge.
Hamilton				
Hancock	D. B. Beardsley	Findlay	Sept. 29, 30, and Oct. 1 and 2	Findlay.
Hardin	J. M. Pearce	Kenton	Oct. 6, 7, 8, and 9	Kenton.
Harrison	Jno. L. Robb	Cadiz		Cadiz.
Hocking	J. E. Brown	Logan		
Holmes	Geo. W. Sharp	Millersburg	Sept. 21, 22, 23, and 24	Millersburg.
Jackson	J. D. Gilliland	Jackson		Jackson.

Jefferson	R. F. Henderson	Smithfield	Sept. 22, 23, and 24	Smithfield.
Knox	John F. Gay	Mt. Vernon	Oct. 5, 6, 7, and 8	Mt. Vernon.
Lake	C. R. Stone	Painesville	Sept. 22, 23, and 24	Painesville.
Lawrence	T. J. Murdock	Ironton	Sept. 14, 15, 16, and 17	Ironton.
Licking	J. F. Lingafelter	Newark	Sept. 28, 29, 30, and Oct. 1	Newark.
Logan	I. N. Zearing	Bellefontaine	Sept. 28, 29, 30, and Oct. 1	Bellefontaine.
Lorain	E. G. Johnson	Elyria	Sept. 14, 15, and 16	Elyria.
Mahoning	Geo. F. Lynn	Canfield	Oct. 5, 6, 7, and 8	Canfield.
Marion	J. E. Crow	Marion	Oct. 5, 6, 7, and 8	Marion.
Medina	Thos. S. Shaw	Medina	Sept. 14, 15, and 16	Medina.
Mercer	John H. Beane	Celina	Sept. 15, 16, 17, and 18	Celina.
Miami	A. M. Haywood	Troy	Oct. 5, 6, 7, and 8	Troy.
Monroe	Geo. P. Dorr	Woodsfield	....	Woodsfield.
Morgan	Thos. Hammond	McConnelsville	Sept. 21, 22, 23, and 24	McConnelsville.
Morrow	W. G. Irwin	Mt. Gilead	Sept. 21, 22, 23, and 24	Mt. Gilead.
Muskingum	T. F. Spangler	Zansville	Sept. 7, 8, 9, and 10	Zanesville.
Ottawa	J. H. Miller	Gypsum	Oct. 6, 7, and 8	Port Clinton.
Paulding	A. Dornfey	Paulding	....	Paulding.
Perry	David D. Brush	New Lexington	Sept. 28, 29, 30, and Oct. 1	New Lexington.
Pickaway	E. K. Rife	Circleville	Sept. 28, 29, 30, and Oct. 1	Circleville.
Portage	C. L. Bartlett	Ravenna	Sept. 21, 22, 23, and 24	Ravenna.
Preble	Frank G. Thompson	Eaton	Sept. 28, 29, 30, and Oct. 1	Eaton.
Putnam	Samuel S. Bacon	Ottawa	Oct. 6, 7, 8, and 9	Ottawa.
Richland	J. M. Waugh	Mansfield	Sept. 28, 29, 30, and Oct. 1	Mansfield.
Ross	H. W. Woodrow	Chillicothe	Aug. 10, 11, 12, and 13	Chillicothe.
Sandusky	Wm. B. Kridler	Fremont	Sept. 28, 29, 30, and Oct. 1	Fremont.
Seneca	H. J. Weller	Tiffin	Sept. 28, 29, 30, and Oct. 1	Tiffin.
Shelby	Jas. S. Read	Sidney	Sept. 28, 29, 30, and Oct. 1	Sidney.
Stark	I. N. Kinney	Canton	Sept. 28, 29, 30, and Oct. 1	Canton.
Summit	John H. Christy	Akron	Oct. 5, 6, and 7	Akron.
Trumbull	H. F. Austin	Leavittsburg	Sept. 14, 15, 16, and 17	Warren.
Tuscarawas	C. Slingluff	Canal Dover	Sept. 28, 29, 30, and Oct. 1	Canal Dover.
Union	A. H. Beightler	Marysville	Sept. 28, 29, 30, and Oct. 1	Marysville.
Van Wert	Henry Robinson	Van Wert	Sept. 30, Oct. 1 and 2	Van Wert.
Warren	Geo. W. Carey	Lebanon	....	Lebanon.
Washington	C. G. Frazyer	Marietta	Sept. 29, 30, and Oct. 1	Marietta.
Wayne	J. C. Plumer	Wooster	Oct. 6, 7, and 8	Wooster.
Wood	J. O. Avery	Weston	Sept. 28, 29, 30, and Oct. 1	Tontogany.
Wyandot	L. B. Hare	Upper Sandusky	Oct. 12, 13, 14, and 15	Upper Sandusky.

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880.

Counties.	Shorthorns.			Devons.			Any other breeds.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Adams	......	......	......	......	......	......	......	......	......
Allen	78	$101 00	$83 00	......	......	......	13	$130 00	$34 00
Ashland	......	......	......	......	......	......	......	......	......
Ashtabula	46	84 00	84 00	1	$34 00	......	70	263 00	113 00
Athens	......	......	......	......	......	......	......	......	......
Auglaize	......	......	......	25	60 00	$58 00	27	80 00	77 00
Belmont	27	250 00	106 00	8	169 00	44 00	9	30 00	20 00
Brown	25	67 00	64 00	......	......	......	17	51 00	30 00
Butler	28	124 00	122 00	1	27 00	8 00	56	260 00	233 00
Carroll	15	51 00	34 00	......	......	......	......	......	......
Champaign	13	119 00	50 00	......	8 00	......	......	10 00	......
Clarke	30	218 00	177 00	19	81 00	76 00	31	165 00	125 00
Clermont	10	57 00	25 00	4	40 00	12 00	......	......	......
Clinton	8	178 00	106 00	......	......	......	......	......	......
Columbiana	26	......	......	......	......	......	14	......	......
Coshocton	35	140 00	120 00	......	15 00	......	18	56 00	53 00
Crawford	11	112 00	41 00	5	112 00	34 00	64	281 00	281 00
Cuyahoga	12	30 00	22 50	6	30 00	......	......	......	......
Darke	35	209 00	185 40	13	62 00	36 90	20	66 00	38 70
Defiance	......	......	......	......	......	......	......	......	......
Delaware	35	120 00	117 00	......	......	......	9	29 00	17 00
Erie	......	......	......	......	......	......	......	......	......
Fairfield	24	277 00	332 00	......	......	......	7	90 00	46 00
Fayette	......	......	......	......	......	......	......	......	......
Franklin	......	......	......	......	......	......	......	......	......
Fulton	......	......	......	......	......	......	......	......	......
Gallia	31	98 00	89 00	......	......	......	38	168 00	83 00
Geauga	......	......	......	......	......	......	......	......	......
Greene	12	67 00	56 00	13	52 00	43 00	46	267 00	148 00
Guernsey	......	......	......	......	......	......	......	......	......

Hamilton	9	102 00	26 00				20	119 00	61 00
Hancock					67 00				
Hardin	26	72 00	63 00				13	81 00	30 00
Harrison	19	60 00	48 00	13	50 00	37 50	16	40 00	30 00
Henry									
Highland									
Hocking	23	100 00	90 00	4	122 00	66 00	34	127 00	112 00
Holmes	9	93 00							
Huron	24	80 00	62 00				34	199 00	91 00
Jackson								72 50	60 00
Jefferson	25	83 00	82 00	18	71 50	47 00	16	36 50	26 50
Knox	27	78 00	46 00				3	75 00	14 00
Lake	83	121 00	98 00				9	45 00	26 00
Lawrence		78 00	33 00	43	78 00	53 00		120 00	41 00
Licking				23	146 00	132 00	26	136 00	96 00
Logan	20	49 00	49 00	5	44 00	44 00	57	194 00	194 00
Lorain	15	57 00	43 00	4	47 00	46 00	62	241 00	174 00
Lucas									
Madison									
Mahoning	29	133 00	95 00	1	60 00	30 00	37	71 00	50 00
Marion	25	90 00	85 00		78 00		48	241 00	143 00
Medina									
Meigs	24	103 00	85 00	4	104 00	26 00	38	165 00	132 00
Mercer	22	216 00	172 00				3	104 00	27 00
Miami	15	56 00	42 00		49 00		6	97 00	11 00
Monroe	6	37 00	18 00	4	38 00	13 00			
Montgomery									
Morgan	15	46 00	44 00		40 00		7	34 00	13 00
Morrow	25	90 00	82 00				32	160 00	72 00
Muskingum	42	94 00	83 00	14	73 00	39 00	38	189 00	123 00
Noble							4	16 00	7 00
Ottawa	5	36 00	11 00				30	37 00	25 00
Paulding									
Perry	12	70 00	44 00	13	46 00	32 00	16	90 00	65 00
Pickaway	15	121 00	109 00		36 00		6	50 00	37 00
Pike									
Portage	32	56 00	52 00	11	46 00	32 00	60	92 00	84 00
Preble	11	60 00	60 00		30 00		97	242 50	189 75
Putnam	37	126 00	122 00				17	75 00	34 00
Richland	29		72 00				29	338 00	70 00

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	Shorthorns.			Devons.			Any other breeds.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Ross	...	...	...	...	...	...	45	$366 00	$325 00
Sandusky	...	...	...	...	...	...	...	...	...
Scioto	...	...	...	...	...	...	...	...	...
Seneca	12	$75 00	$35 00	4	$75 00	$20 00	18	160 00	60 00
Shelby	14	67 00	24 00	9	55 00	23 00	7	37 00	15 00
Stark	28	185 00	151 00	...	...	...	41	216 00	171 00
Summit	...	...	...	...	...	...	...	...	...
Trumbull	42	293 00	243 00	...	...	...	28	54 00	39 00
Tuscarawas	...	...	...	...	...	...	...	...	...
Union	71	194 00	140 00	13	50 00	36 00	53	188 00	91 00
Van Wert	10	...	...	5	124 00	37 00	...	...	...
Vinton	...	...	...	...	...	...	...	...	...
Warren	28	67 00	67 00	14	41 00	38 00	52	106 00	81 00
Washington	23	84 00	77 00	27	60 00	56 00	41	116 00	44 00
Wayne	...	...	...	...	...	...	...	...	...
Williams	9	60 00	40 00	2	60 00	8 00	39	275 00	114 25
Wood	14	45 00	41 00	...	...	...	12	19 00	10 00
Wyandot	38	106 00	95 00	...	...	...	26	70 00	48 00
Totals	1,414	$5,785 00	$4,542 90	326	$2,380 50	$1,127 40	1,559	$7,040 50	$4,335 20

Exhibit-Sheet of County Fairs in Ohio for 1880—Continued.

Counties.	Fat cattle and work-oxen.			Thoroughbreds.			Roadsters.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Adams									
Allen	4	$20 00	$13 00	5	$70 00	$26 00	11	$52 00	$24 00
Ashland									
Ashtabula	13	62 00	36 00				70	145 00	108 00
Athens									
Auglaize							20	17 00	17 00
Belmont	9	97 00	56 00	2	83 00	18 00			
Brown	7	27 00	14 00	22	86 00	55 00	67	148 00	148 00
Butler	8	53 00	53 00				153	222 00	222 00
Carroll	46	80 00	80 00						
Champaign	1	17 00		6	24 00	7 00	12	109 00	65 00
Clarke	3	90 00	8 00	6	117 00	41 00	48	142 00	86 00
Clermont	48	64 00	60 00	40	46 00	34 00	83	150 00	90 00
Clinton				23	147 00	114 00	18	140 00	106 00
Columbiana	14	207 50	125 00				136		
Coshocton	3	35 00	10 00	6	94 00	63 00	12	102 00	90 00
Crawford	12	63 00	35 00	7	78 00		14	57 00	52 00
Cuyahoga	32	61 50	37 50	6	54 50	12 00	29	47 00	36 00
Darke				6	36 00	32 40	25	58 50	52 60
Defiance									
Delaware	11	43 00	27 00				73	111 00	92 00
Erie									
Fairfield	28	165 00	100 00	10	133 00	77 00	80	296 00	288 00
Fayette									
Franklin									
Fulton									
Gallia	3	15 00	6 00				37	99 00	83 00
Geauga									
Greene				3	60 00	18 00	22	60 00	43 00
Guernsey									

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	Fat cattle and work-oxen.			Thoroughbreds.			Roadsters.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Hamilton	1	$10 00	$5 00	.....	$58 00	.....	99	$213 00	$195 00
Hancock	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hardin	2	33 00	3 00	13	35 00	$20 00	22	65 00	42 00
Harrison	5	20 00	15 00	4	100 00	75 00	16	50 00	37 50
Henry	.....	.....	.....	.....	.....	.....	.....	.....	.....
Highland	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hocking	7	32 00	17 00	7	100 00	42 00	17	100 00	55 00
Holmes	19	83 00	.....	10	191 00	154 00	.....	.....	.....
Huron	21	54 00	64 00	3	12 00	12 00	83	130 00	111 00
Jackson	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson	4	24 00	18 00	.....	.....	.....	54	115 00	91 00
Knox	3	27 00	4 00	27	121 00	100 00	8	82 00	40 00
Lake	8	55 00	21 00	.....	.....	.....	46	63 00	43 00
Lawrence	.....	24 00	13 00	.....	73 00	21 00	58	95 00	82 00
Licking	20	115 00	115 00	30	200 00	190 00	160	173 00	168 50
Logan	8	57 00	57 00	.....	.....	.....	101	215 00	215 00
Lorain	27	6 00	.....	.....	.....	.....	78	63 00	74 00
Lucas	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mahoning	53	183 00	104 00	.....	.....	.....	21	68 00	53 00
Marion	18	98 00	56 00	21	42 00	34 00	53	127 00	100 00
Medina	.....	.....	.....	.....	.....	.....	.....	.....	.....
Meigs	22	72 00	44 00	8	30 00	15 00	14	44 00	41 00
Mercer	2	15 00	5 00	.....	80 00	.....	2	49 00	8 00
Miami	10	68 00	49 00	.....	31 00	.....	59	108 00	97 00
Monroe	6	56 00	29 00	4	20 00	.....	.....	.....	.....
Montgomery	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morgan	10	34 00	23 00	.....	39 00	.....	32	63 00	45 00
Morrow	11	61 00	33 00	13	72 00	34 00	8	73 00	40 00
Muskingum	8	31 00	26 00	4	88 00	31 00	41	122 00	111 00

Noble	2	12 00	5 00	8	26 00	16 50			
Ottawa									
Paulding									
Perry	2	37 00	32 00	1	71 00	8 00	12	62 00	56 00
Pickaway	2	58 00	48 00	1	90 00	62 00	28	125 00	113 00
Pike									
Portage	35	66 00	21 50	19	73 00	60 00	72	80 00	49 00
Preble	3	21 00	20 00	2	30 00	19 50	89	113 50	67 50
Putnam							45	71 00	67 00
Richland				5	66 00	20 00	55	142 00	116 00
Ross				4			32	644 00	453 00
Sandusky									
Scioto									
Seneca	6	20 00	28 00				16	100 00	48 00
Shelby					29 00		58	113 00	90 00
Stark	7	74 00	58 00	21	176 00	126 00	21	133 00	79 00
Summit									
Trumbull	34	135 00	80 00				124	168 00	134 00
Tuscarawas									
Union				22	126 00	61 00	99	86 00	70 00
Van Wert									
Vinton									
Warren				3	52 00	20 00	43	77 00	67 00
Washington	20	48 00	35 00	39	50 00	50 00	38	115 00	65 00
Wayne									
Williams	4	50 00	21 00				19	34 00	30 00
Wood	5	17 00	12 00				35	46 00	38 00
Wyandot	12	128 00	65 00	23	99 00	74 00	75	92 00	61 00
Total	985	$2,924 00	$1,786 50	434	$3,208 50	$1,742 40	2,473	$6,175 00	$4,855 10

Exhibit-Sheet of County Fairs in Ohio for 1880—Continued.

Counties.	General purposes.			Draft.			Speed horses.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Adams									
Allen	38	$94 00	$78 00	32	$94 00	$61 00	17	$905 00	$510 00
Ashland									
Ashtabula				31	102 00	42 00			
Athens									
Auglaize	60	72 00	60 00	19	25 00	25 00	30	280 00	280 00
Belmont	27	120 00	75 00	16	110 00	62 00	55	646 00	491 00
Brown	106	183 00	160 00	48	101 00	91 00			
Butler	103	173 00	173 00	32	99 00	99 00	39	925 00	925 00
Carroll	113	175 00	168 00	42	104 00	92 00	21	367 00	367 00
Champaign	65	114 00	85 00	26	109 00	74 00	21	175 00	100 00
Clarke	41	128 00	89 00	28	135 00	74 00	19	465 00	405 00
Clermont	96	127 00	85 00	55	82 00	50 00	7	185 00	35 00
Clinton	41	146 00	132 00	17	133 00	90 00	71	1,350 00	715 00
Columbiana	109			73			32	624 00	450 00
Coshocton	29	136 00	110 00	35	165 00	105 00	40	525 00	400 00
Crawford	28	94 00	81 00	14	112 00	74 00	45	873 00	803 00
Cuyahoga	64	67 00	49 00	3	10 00	3 00	16	125 00	35 00
Darke	53	122 00	79 00	16	121 50	72 00	52	1,440 00	1,065 00
Defiance									
Delaware	48	138 00	91 00	52	107 00	95 00	30	349 00	333 00
Erie									
Fairfield	93	385 00	382 00	40	181 00	166 00	43	680 00	680 00
Fayette									
Franklin									
Fulton									
Gallia	49	75 00	60 00	6	29 00	18 00	15	800 00	800 00
Geauga									
Greene	23	89 00	45 00	8	102 00	30 00			
Guernsey									

Hamilton	61	110 00	106 00	30	72 00	64 00	40	1,165 00	616 50
Hancock									
Hardin	58	98 00	76 00	43	97 00	80 00	29	658 00	625 00
Harrison	15	80 00	60 00	21	100 00	75 00	14	280 00	280 00
Henry									
Highland									
Hocking	44	126 00	88 00	13	100 00	37 00	44	217 00	195 00
Holmes							100	900 00	550 00
Huron	66	109 00	76 00	33	109 00	56 00	35	398 00	398 00
Jackson		70 00	78 00				45	25 00	
Jefferson	55	91 00	86 00	32	113 00	88 00	24	310 00	307 00
Knox	29	84 00	60 00	12	114 00	72 00	22	1,340 00	802 00
Lake	47	104 00	82 00						
Lawrence		55 00	43 00		51 00	26 00		204 00	204 00
Licking	148	148 00	136 00	120	146 00	143 00		845 00	815 50
Logan	123	225 00	225 00	74	225 00	225 00	30	595 00	575 00
Lorain	75	58 00	57 00	59	14 00	42 00	25	308 00	293 00
Lucas									
Madison									
Mahoning	111	320 00	224 00				21	160 00	150 00
Marion	54	99 00	79 00	66	125 00	109 00	37	840 00	575 00
Medina									
Meigs	51	138 00	107 00	6	48 00	38 00	29	463 00	398 00
Mercer	20	119 00	25 00	2	56 00	23 00	45	1,100 00	670 00
Miami	69	89 00	85 00	39	94 00	84 00	25	585 00	505 00
Monroe	24	80 00	40 00	4	20 00	15 00	19	165 00	155 00
Montgomery									
Morgan	57	67 00	66 00	15	28 00	26 00	25	94 00	94 00
Morrow	26	83 00	55 00	23	73 00	57 00	16	480 00	450 00
Muskingum	44	123 00	91 00	55	222 00	169 00	35	605 00	605 00
Noble	29	105 00	72 00	11	40 00	25 00	11	155 00	155 00
Ottawa	29	70 00	46 50	14	62 00	47 00	10	85 00	25 00
Paulding									
Perry	34	103 00	66 00	15	103 00	38 00	14	255 00	255 00
Pickaway	26	112 00	96 00	21	18 00	10 00	15	249 00	190 00
Pike									
Portage	53	70 00	54 00	6	20 00	18 00	9	225 00	225 00
Preble	77	115 00	101 00	62	110 00	88 50	56	660 00	325 50
Putnam	26	98 00	76 00	15	97 00	42 25	20	374 00	349 00
Richland	52	94 00	82 00	26	94 00	78 00	28	410 00	388 50

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	General purposes.			Draft.			Speed horses.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Ross	40	......	......	26	......	......	87	$1,650 00	$1,650 00
Sandusky	......	......	......	......	......	......	......	......	......
Scioto	......	......	......	......	......	......	......	......	......
Seneca	42	$180 00	$152 00	20	$160 00	$96 00	30	600 00	380 00
Shelby	50	112 00	78 00	17	70 00	54 00	30	647 00	282 00
Stark	98	364 00	306 00	36	179 00	154 00	14	175 00	170 00
Summit	......	......	......	......	......	......	......	......	......
Trumbull	61	107 00	97 00	8	35 00	20 00	17	300 00	300 00
Tuscarawas	......	......	......	......	......	......	......	......	......
Union	68	94 00	83 00	78	126 00	115 00	24	510 00	510 00
Van Wert	33	81 00	56 00	26	81 00	63 00	6	35 00	35 00
Vinton	......	......	......	......	......	......	......	......	......
Warren	119	220 00	201 00	28	116 00	85 00	45	1,150 00	1,060 00
Washington	46	107 00	92 00	28	107 00	73 00	23	800 00	755 00
Wayne	......	......	......	......	......	......	......	......	......
Williams	73	112 00	106 00	27	124 00	93 00	......	460 00	......
Wood	58	53 00	54 00	31	60 00	62 00	29	340 00	332 00
Wyandot	18	99 00	63 00	18	99 00	68 00	28	535 00	522 50
Totals	3,395	$7,010 00	$5,831 50	1,843	$5,429 50	$3,981 00	1,709	$32,066 00	$25,566 50

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	Mules and Asses.			Sheep.			Hogs.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Adams	......	......	......	......	......	......	......	......	......
Allen	1	$17 00	$3 00	82	$104 00	$86 00	92	$142 00	$123 00
Ashland	......	......	......	......	......	......	......	......	......
Ashtabula	......	......	......	67	78 00	71 00	18	60 00	56 00
Athens	......	......	......	......	......	......	......	......	......
Auglaize	6	16 00	4 00	23	43 00	27 00	30	53 00	40 00
Belmont	2	17 00	......	55	173 00	96 00	20	76 00	52 00
Brown	7	26 00	16 00	99	89 00	89 00	59	173 00	96 00
Butler	19	49 00	30 00	101	145 00	114 00	143	329 00	250 00
Carroll	5	9 00	9 00	64	90 00	90 00	32	58 00	58 00
Champaign	3	27 00	10 00	59	87 00	35 00	23	100 00	40 00
Clarke	4	47 00	13 00	119	143 00	141 00	74	211 00	205 00
Clermont	18	46 00	33 00	46	36 00	36 00	58	47 00	45 00
Clinton	3	28 00	13 00	25	54 00	48 00	40	140 00	136 00
Columbiana	3	4 00	3 00	99	238 00	180 00	42	134 00	105 00
Coshocton	3	27 00	10 00	75	195 00	115 00	61	165 00	100 00
Crawford	6	32 00	20 00	57	133 00	112 00	79	182 00	131 00
Cuyahoga	1	7 50	2 00	36	67 50	47 50	18	41 00	27 50
Darke	......	......	......	110	130 00	113 00	57	185 00	184 50
Defiance	......	......	......	......	......	......	......	......	......
Delaware	......	......	......	73	124 00	107 00	58	108 00	80 00
Erie	......	......	......	......	......	......	......	......	......
Fairfield	1	80 00	10 00	51	348 00	271 00	53	292 00	284 00
Fayette	......	......	......	......	......	......	......	......	......
Franklin	......	......	......	......	......	......	......	......	......
Fulton	......	......	......	......	......	......	......	......	......
Gallia	11	38 00	24 00	28	54 00	54 00	26	64 00	64 00
Geauga	......	......	......	......	......	......	......	......	......
Greene	1	20 50	2 00	71	104 00	98 00	47	125 00	100 00
Guernsey	......	......	......	......	......	......	......	......	......

EXHIBIT-SHEET OF COUNTY FAIRS FOR 1880—Continued.

Counties.	Mules and Asses.			Sheep.			Hogs.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Hamilton	2	$18 00	$12 00	61	$111 00	$93 00	61	$225 00	$103 00
Hancock									
Hardin	3	19 00	9 00	39	90 00	$71 00	24	$112 00	48 00
Harrison	5	12 00	9 00	74	240 00	180 00	39	80 00	60 00
Henry									
Highland									
Hocking	5	35 00	11 00	32	148 00	97 00	29	160 00	74 00
Holmes	2	26 00	5 00	67	183 00	120 00	40	124 00	75 00
Huron				70	181 00	118 00	26	116 00	78 00
Jackson		22 80	4 50		22 50	18 00		39 00	19 50
Jefferson				52	173 00	150 00	59	75 00	69 00
Knox	5	32 00	19 00	44	243 00	184 00	24	203 00	106 00
Lake				36	39 00	30 00	24	60 00	34 00
Lawrence	3	38 00	8 00	34	92 00	30 00		86 00	83 00
Licking	5	7 00	7 00	162	265 00	256 50	208	483 00	483 00
Logan	10	68 00	48 00	120	248 00	220 00	68	71 00	75 00
Lorain	16			34	105 00	60 00	7	54 00	20 00
Lucas									
Madison									
Mahoning	5	37 00	10 00	97	160 00	135 00	28	125 00	84 00
Marion	5	45 00	19 00	75	172 00	138 50	110	144 00	116 00
Medina									
Meigs	10	42 00	27 00	33	111 00	95 00	20	46 00	31 00
Mercer				19	62 00	46 00	15	131 00	69 00
Miami	1	10 00		36	177 00	109 00	38	158 00	84 00
Monroe	5	29 00	11 00	57	74 00	28 00	18	10 00	4 00
Montgomery									
Morgan	7	35 00	14 00	82	105 00	86 00	16	46 00	34 00
Morrow	2	5 00	3 00	51	104 00	88 00	39	95 00	63 00
Muskingum	3	15 00	10 00	52	166 00	143 00	30	136 00	102 00

Noble	4	21 00	9 00	15	38 00	26 00	4	10 00	10 00
Ottawa	2	13 00	2 00	45	48 50	30 25	22	36 50	26 00
Paulding									
Perry	7	30 00	25 00	60	159 00	125 00	8	111 00	33 00
Pickaway	1	20 00	4 00	29	116 00	106 00	15	80 00	52 00
Pike									
Portage				48	79 00	55 00	26	56 00	41 00
Preble	18	97 50	91 00	208	151 00	135 00	105	204 00	185 00
Putnam	8	22 00	17 00	14	102 00	41 00	50	72 00	58 00
Richland				73	131 00	129 00	39	187 00	111 00
Ross				36	163 00	142 00	34	186 00	103 00
Sandusky									
Scioto									
Seneca				38	120 00	100 00	46	60 00	38 00
Shelby	3	35 00	6 00	23	61 00	41 00	31	133 00	66 00
Stark	3		5 00	76	286 00	278 00	70	398 00	269 00
Summit									
Trumbull				94	164 00	151 00	55	115 00	82 00
Tuscarawas									
Union				218	195 00	149 00	89	116 00	114 00
Van Wert				17	40 00	30 00	44	125 00	69 00
Vinton									
Warren	14	24 00	19 00	82	90 00	84 00	65	147 00	114 00
Washington	5	31 00	21 00	57	161 00	115 00	17	72 00	44 00
Wayne									
Williams	16	26 00	26 00	44	96 00	86 50	41	108 00	72 00
Wood		13 00		32	56 00	54 00	32	76 00	71 00
Wyandot	9	18 00	14 00	54	71 00	67 00	51	118 00	77 00
Totals	278	$1,337 30	$667 50	3,930	$8,034 50	$6,371 25	2,797	$7,874 50	$5,726 50

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	Poultry.			Mechanic arts.			Farm products.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Adams									
Allen	50	$41 00	$29 00	209	$142 00	$112 00	379	$79 00	$56 00
Ashland									
Ashtabula	106	59 00	42 75	86	115 00	25 25	464	121 00	93 25
Athens									
Auglaize	20	13 00	13 00	95	80 00	75 00	144	50 00	50 00
Belmont	34		25 00	37	208 00	80 00	164	187 00	71 00
Brown	43	32 00	20 00	31	101 50	53 50	140	52 00	41 50
Butler	58	93 00	46 00	263	117 00	78 00	242	136 00	125 00
Carroll	58	25 00	25 00	56	75 00	67 00	163	46 00	46 00
Champaign	66	46 00	23 00	34	90 00	30 00	153	77 00	50 00
Clarke	150	212 00	138 00	101	347 00	99 00	330	187 00	128 00
Clermont	71	8 00	37 50	82	132 00	105 00	682	54 25	75 00
Clinton	100	31 00	31 00	24	225 00	115 00	66	48 50	41 00
Columbiana	35	50 75	25 00	86	78 00	50 00	303	118 00	80 00
Coshocton	21	60 00	18 00	175	260 00	105 00	139	112 00	60 00
Crawford	83	95 00	42 00	208	356 00	216 00	258	186 00	125 00
Cuyahoga	64	40 50	12 25	96	82 50	39 25	172	74 00	44 50
Darke	98	73 50	52 25	170	260 00	142 20	139	62 00	40 00
Defiance									
Delaware	51	25 00	23 00	128	67 00	52 00	245	111 00	90 00
Erie									
Fairfield	90	110 00	90 00	95	303 00	226 00	198	312 50	232 50
Fayette									
Franklin									
Fulton									
Gallia	25	27 00	27 00	67	109 00	61 00	97	57 50	41 00
Geauga									
Greene	16	33 00	6 00				215	111 00	66 50
Guernsey									

Hamilton	88	135 00	81 00	40	154 00	35 00	137	64 00	49 00
Hancock	....	....	....	....	....	....	....	....	....
Hardin	28	39 00	12 00	87	124 50	50 00	393	92 50	55 50
Harrison	45	40 00	30 00	31	40 00	30 00	114	27 00	18 00
Henry	....	....	....	....	....	....	....	....	....
Highland	....	....	....	....	....	....	....	....	....
Hocking	36	60 50	25 50	40	195 50	74 75	69	75 50	29 00
Holmes	33	28 50	15 00	131	128 00	100 00	305	79 00	50 00
Huron	75	38 25	29 25	163	252 00	145 00	335	87 50	62 00
Jackson	....	6 00	6 00	....	39 00	22 80	....	60 25	43 78
Jefferson	41	24 60	20 60	56	110 00	53 80	158	65 00	40 60
Knox	35	57 00	19 00	26	114 00	73 00	83	193 00	124 00
Lake	14	20 75	7 00	48	83 00	36 75	215	59 25	51 25
Lawrence	31	43 50	22 50	35	85 00	40 50	195	104 00	67 00
Licking	109	102 00	96 00	312	293 00	291 00	196	581 00	578 00
Logan	59	45 00	45 00	167	164 00	175 00	316	164 00	175 00
Lorain	129	186 00	72 00	66	147 00	83 00	129	186 00	72 00
Lucas	....	....	....	....	....	....	....	....	....
Madison	....	....	....	....	....	....	....	....	....
Mahoning	137	68 00	59 00	183	237 75	120 00	225	176 00	127 50
Marion	26	73 80	15 50	295	283 00	172 75	290	184 00	59 25
Medina	....	....	....	....	....	....	....	....	....
Meigs	2	14 00	14 00	71	195 00	146 25	200	151 00	107 00
Mercer	13	38 00	12 00	17	124 00	15 00	43	58 00	12 50
Miami	16	28 00	11 00	76	147 00	64 00	27	130 00	77 00
Monroe	28	40 00	20 00	40	30 00	10 00	140	40 00	15 00
Montgomery	....	....	....	....	....	....	....	....	....
Morgan	43	27 00	24 00	47	107 50	44 00	171	51 50	46 00
Morrow	25	31 00	13 00	66	101 00	58 00	166	49 00	29 00
Muskingum	86	65 00	32 00	114	371 00	164 00	114	72 00	57 00
Noble	2	3 00	3 00	10	23 00	16 00	19	18 75	10 75
Ottawa	35	19 00	15 00	59	60 00	38 00	141	45 00	23 00
Paulding	....	....	....	....	....	....	....	....	....
Perry	14	27 00	9 00	19	96 00	34 00	158	89 00	72 00
Pickaway	24	41 75	19 50	30	86 00	65 00	90	82 50	70 00
Pike	....	....	....	....	....	....	....	....	....
Portage	61	29 00	15 50	48	70 25	24 50	228	76 00	52 50
Preble	125	41 50	45 50	285	265 00	245 00	341	97 00	93 25
Putnam	23	16 50	12 50	74	155 00	51 75	169	76 00	37 65
Richland	46	69 50	33 00	113	166 00	57 00	70	63 50	....

EXHIBIT-SHEET OF COUNTY FAIRS OF OHIO FOR 1880—Continued.

Counties.	Poultry.			Mechanic arts.			Farm products.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Ross	65	$63 00	$51 00	72	$152 00	$104 00	35	$67 00	$36 00
Sandusky	......	......	......	......	......	......	......	......	......
Scioto	......	......	......	......	......	......	......	......	......
Seneca	124	80 00	42 00	241	120 00	100 00	265	200 00	140 00
Shelby	23	26 00	14 00	128	179 00	95 00	152	79 00	55 00
Stark	66	124 00	77 00	80	170 00	75 00	301	402 00	259 00
Summit	......	......	......	......	......	......	......	......	......
Trumbull	160	84 50	71 50	80	159 00	73 00	67	108 00	63 00
Tuscarawas	......	......	......	......	......	......	......	......	......
Union	87	35 00	35 00	137	157 00	148 00	220	147 00	147 00
Van Wert	13	6 00	6 00	10	88 00	33 00	81	46 00	36 00
Vinton	......	......	......	......	......	......	......	......	......
Warren	172	114 75	63 75	219	336 00	258 00	420	164 25	136 00
Washington	34	39 80	17 00	79	215 00	80 00	113	285 00	44 00
Wayne	......	......	......	......	......	......	......	......	......
Williams	50	63 00	22 25	120	300 00	133 50	113	98 00	31 25
Wood	34	15 75	8 30	67	124 00	48 50	352	179 25	60 45
Wyandot	18	44 00	21 00	60	......	......	175	62 00	37 50
Totals	3,514	$3,228 70	$1,988 90	6,085	$9,594 50	$5,415 05	12,224	$7,216 50	$4,905 98

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	Horticulture and floriculture.			Fine arts.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Adams	......	......	......	......	......	......
Allen	313	$61 00	$68 00	89	$35 00	$33 00
Ashland	......	......	......	......	......	......
Ashtabula	568	155 00	113 00	......	......	......
Athens	......	......	......	......	......	......
Auglaize	231	35 00	35 00	15	20 00	20 00
Belmont	371	84 00	128 25	21	54 00	4 50
Brown	386	140 50	101 00	12	8 00	8 00
Butler	526	214 00	222 00	42	39 00	26 00
Carroll	102	61 00	61 00	26	35 00	30 00
Champaign	202	110 00	58 00	31	13 00	9 00
Clarke	637	248 00	224 00	22	66 00	32 00
Clermont	635	49 75	140 00	44	47 50	45 50
Clinton	247	211 00	156 00	24	32 00	22 00
Columbiana	483	259 25	195 00	46	46 00	10 00
Coshocton	56	80 00	40 00	54	77 00	40 00
Crawford	336	243 00	114 00	57	85 00	49 00
Cuyahoga	200	63 50	41 70	20	30 00	12 50
Darke	689	208 00	92 50	29	42 50	16 20
Defiance	......	......	......	......	......	......
Delaware	441	86 00	72 00	14	......	......
Erie	......	......	......	......	......	......
Fairfield	293	378 00	323 50	56	117 00	110 00
Fayette	......	......	......	......	......	......
Franklin	......	......	......	......	......	......
Fulton	......	......	......	......	......	......
Gallia	91	51 50	38 00	16	23 00	18 00
Geauga	......	......	......	......	......	......
Greene	260	86 75	61 50	50	52 00	21 00
Guernsey	......	......	......	......	......	......

Exhibit-Sheet of County Fairs in Ohio for 1880—Continued.

Counties.	Horticulture and floriculture.			Fine arts.		
	No. of entries.	Amount offered.	Amount awarded.	No. of entries.	Amount offered.	Amount awarded.
Hamilton	193	$245 00	$219 00	43	$35 00	$20 50
Hancock						
Hardin	167	64 00	48 00	4	15 00	2 00
Harrison	446	120 00	55 00	29	24 00	6 00
Henry						
Highland						
Hocking	197	108 00	55 25	11	48 00	15 00
Holmes	216	56 00	50 00	38	30 00	25 00
Huron	189	65 00	51 00	63	66 00	43 00
Jackson		34 50	11 00		40 75	18 10
Jefferson	450	111 00	93 30	35	25 00	12 60
Knox	167	120 00	87 00	24	55 00	38 00
Lake	265	53 00	39 75	16	27 00	10 50
Lawrence	552	175 00	115 00	122	50 00	26 00
Licking	513	351 00	342 00	20	48 00	43 00
Logan	778	179 00	229 00	36	57 00	60 00
Lorain	200	139 00	104 00	57	17 00	16 00
Lucas						
Madison						
Mahoning	332	144 00	102 50	55	78 00	51 00
Marion	288	57 75	47 00	95	50 00	27 00
Medina						
Meigs	130	73 25	57 50	5	8 00	8 00
Mercer	38	37 50	14 00			
Miami	371	146 00	83 00	79	98 00	63 00
Monroe	945	57 00	57 00	20	10 00	5 00
Montgomery						
Morgan	304	71 50	64 00	22	15 50	8 50
Morrow	400	71 00	59 00	45	26 00	15 00
Muskingum	294	168 00	146 00	11	47 00	18 00

Noble	11	19 50	16 00	......	......	......
Ottawa	447	86 00	61 00	......	......	......
Paulding	......	......	......	......	......	......
Perry	185	152 00	94 00	19	22 00	16 00
Pickaway	231	195 00	126 00	24	22 00	15 00
Pike	......	......	......	......	......	......
Portage	509	98 25	82 00	25	16 75	12 50
Preble	727	100 00	75 50	66	22 00	18 00
Putnam	104	38 00	28 25	......	......	......
Richland	97	65 00	100 00	16	32 50	......
Ross	227	350 00	207 00	32	87 00	44 00
Sandusky	......	......	......	......	......	......
Scioto	......	......	......	......	......	......
Seneca	405	85 00	50 00	176	50 00	30 00
Shelby	210	114 00	66 00	25	63 00	30 00
Stark	476	180 00	160 50	30	14 00	13 00
Summit	......	......	......	......	......	......
Trumbull	520	291 25	225 75	60	63 00	33 00
Tuscarawas	......	......	......	......	......	......
Union	233	135 00	135 42	46	46 00	35 00
Van Wert	130	80 00	42 00	......	......	......
Vinton	......	......	......	......	......	......
Warren	1,152	276 25	249 75	80	137 75	70 75
Washington	147	102 25	59 25	23	43 50	15 00
Wayne	......	......	......	......	......	......
Williams	467	173 00	139 75	50	85 00	29 00
Wood	268	92 00	53 00	10	16 75	2 50
Wyandot	107	108 00	77 00	26	27 00	14 00
Totals	21,155	$8,212 05	$6,461 50	2,206	$2,441 00	$1,418 65

EXHIBIT-SHEET OF COUNTY FAIRS IN OHIO FOR 1880—Continued.

Counties.	Textile fabrics.			Non-enumerated.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams						
Allen	198	$121 50	$98 00			
Ashland						
Ashtabula	475	161 00	122 25	18	$89 00	$40 00
Athens						
Auglaize	63	15 00	15 00	20		
Belmont	107	100 00	69 50			
Brown	134	70 00	39 50	88		54 00
Butler	178	136 00	108 00			
Carroll	353	78 00	78 00	144		61 00
Champaign	76	54 00	20 00			
Clarke	178	125 00	92 00	2	75 00	25 00
Clermont	241	78 00	75 25	138		126 75
Clinton	99	145 00	63 00	91		
Columbiana	159	103 00	85 00	98	55 00	29 79
Coshocton	85	153 00	43 00	46		18 00
Crawford	151	132 00	102 00	33	64 00	58 00
Cuyahoga	119	91 00	38 25	131	67 00	39 65
Darke	218	100 00	41 70			
Defiance						
Delaware	93	61 00	23 00	2	108 00	
Erie						
Fairfield	198	244 10	184 00	3	50 00	50 00
Fayette						
Franklin						
Fulton						
Gallia	167	79 00	57 00	36		20 00
Geauga						
Greene	286	81 50	52 50			
Guernsey						

Hamilton	119	$79 00	$70 75	1	$14 00	
Hancock						
Hardin	129	55 00	34 00	47	55 00	$25 00
Harrison	38	36 00	6 00	37	50 00	3 00
Henry						
Highland						
Hocking	73	75 75	40 50	1	55 00	20 00
Holmes	186	80 00	75 35			
Huron	245	149 00	92 50			
Jackson					46 00	23 00
Jefferson	168	68 00	53 35	145		18 60
Knox	173	187 00	146 00	30	65 00	13 00
Lake	165	116 50	58 75	15	21 00	23 25
Lawrence	122	75 00	43 00	31	16 00	9 00
Licking	309	216 00	212 50	96	108 00	108 00
Logan	392	135 00	160 00	80		135 71
Lorain	172	107 00	74 00	108		24 00
Lucas						
Madison						
Mahoning				563	50 00	40 00
Marion	489	213 50	148 25	1	26 00	10 00
Medina						
Meigs	99	23 50	21 00			
Mercer	97	117 00	40 50			
Miami	24	59 00	36 00	33	50 00	46 00
Monroe	280	24 00	12 00	200		98 75
Montgomery						
Morgan	139	48 00	40 00	14	61 00	36 00
Morrow	247	25 00	13 00			
Muskingum	147	118 00	73 00	17	34 50	19 00
Noble	15	14 00	10 37	16		5 00
Ottawa	115	91 25	30 00			
Paulding						
Perry	85	116 00	60 00	22	23 00	20 00
Pickaway	126	85 00	75 00			
Pike						
Portage	120	62 50	31 25	53	40 00	6 00
Preble	313	155 00	74 10	533	279 00	50 00
Putnam	62	53 50	28 30	30	47 00	17 00
Richland	46	44 00	48 00	44		58 00

Exhibit-Sheet of County Fairs in Ohio for 1880—Continued.

Counties.	Textile fabrics.			Non-enumerated.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Ross	135	162 00	116 00	......	......	......
Sandusky	......	......	......	......	......	......
Scioto	......	......	......	......	......	......
Seneca	230	60 00	30 00	31	65 00	11 00
Shelby	93	65 00	33 00	3	8 00	8 00
Stark	38	46 00	40 00	67	......	......
Summit	......	......	......	......	......	......
Trumbull	190	136 00	95 25	48	74 00	43 50
Tuscarawas	......	......	......	......	......	......
Union	276	206 00	194 00	63	......	......
Van Wert	64	87 00	28 75	......	......	......
Vinton	......	......	......	......	......	......
Warren	375	140 00	104 75	47	75 00	45 00
Washington	197	201 00	90 00	6	16 00	......
Wayne	......	......	......	......	......	......
Williams	162	108 00	40 25	......	......	367 00
Wood	129	96 00	18 25	85	52 00	10 00
Wyandot	190	78 00	37 50	177	196 00	79 50
Totals	10,352	$6,141 60	$4,042 17	3,494	$2,034 50	$2,094 50

FINANCIAL EXHIBIT OF COUNTY AGRICULTURAL SOCIETIES FOR THE YEAR 1880.

Counties.	Amount in treasury at last report.	Amount deficit at last report.	Received for gate and entrance fees.	Booth rents, permits, etc.	Erom other sources.
Adams					
Allen	$86 55		$1,646 40	$428 50	$117 45
Ashland					
Ashtabula	85 00		1,656 74	115 00	162 59
Athens					
Auglaize	29 74		1,537 25	576 25	9 00
Belmont	54 00	$4 83	1,974 60	513 09	
Brown	13 55		1,862 95	249 00	378 53
Butler	141 10		4,652 24	2,714 25	682 06
Carroll	25 00		3,632 23	269 25	279 25
Champaign	20 00		651 59	125 00	303 59
Clarke	60 01		1,484 66	629 35	1,234 75
Clermont	522 00		1,478 50	383 00	171 00
Clinton		2,261 25	2,190 00	521 50	
Columbiana		131 19	2,736 70	310 75	453 75
Coshocton		5,000 00	2,500 00	500 00	
Crawford		27 18	2,666 94	308 00	5 00
Cuyahoga	10 87	2,000 00	473 85	291 00	241 42
Darke	1,027 09		3,529 00	1,138 53	807 10
Defiance					
Delaware			1,915 00	711 92	1,025 00
Erie					
Fairfield	5,330 73		6,413 40	1,418 00	169 59
Fayette					
Franklin					
Fulton					
Gallia	16 57		1,627 48	206 00	248 72
Geauga	2 92		1,615 05	399 77	682 95
Greene		396 46	686 00	530 35	140 00
Guernsey					
Hamilton		367 60	2,136 75	819 49	604 50
Hancock					

Financial Exhibit of County Agricultural Societies for the Year 1880—Continued.

Counties.	Amount in treasury at last report.	Amount deficit at last report.	Received for gate and entrance fees.	Booth rents, permits, etc.	From other sources.
Hardin	$529 11	......	$1,934 23	$427 60	$163 00
Harrison	35 00	......	1,635 00	50 00	125 00
Henry	......	......	......	......	......
Highland	......	......	......	......	......
Hocking	149 78	......	1,302 05	87 60	146 62
Holmes	560 73	......	1,977 45	155 50	152 51
Huron	24 00	......	2,069 53	325 00	......
Jackson	......	......	353 33	19 20	10 70
Jefferson	......	$42 68	1,729 32	170 00	200 94
Knox	......	159 15	3,246 67	199 00	359 31
Lake	164 47	......	887 15	87 75	99 67
Lawrence	9 28	......	115 75	88 25	142 85
Licking	819 85	......	5,047 90	1,063 67	63 00
Logan	......	267 38	2,914 51	725 00	615 64
Lorain	17 28	......	2,238 60	125 00	544 07
Lucas	......	......	......	......	......
Madison	......	......	......	......	......
Mahoning	183 69	......	2,045 60	430 55	578 95
Marion	......	46 88	2,828 25	589 40	523 02
Medina	......	......	......	......	......
Meigs	165 72	528 80	1,909 96	215 30	10 50
Mercer	......	......	1,147 90	625 00	......
Miami	......	47 95	1,421 00	381 37	400 62
Monroe	23 68	......	860 80	100 00	......
Montgomery	......	......	......	......	......
Morgan	144 11	......	1,390 25	177 50	441 56
Morrow	75 57	......	1,780 12	138 50	92 91
Muskingum	153 85	......	3,446 08	321 25	449 00
Noble	......	......	451 74	62 50	99 74
Ottawa	13 04	......	838 80	10 00	281 77
Paulding	......	......	......	......	......
Perry	88 32	......	1,375 01	231 00	28 00

Pickaway		41 18	1,709 55	150 00	124 37
Pike					
Portage		145 52	1,177 60	196 72	122 92
Preble		2 73	3,332 75	793 29	1,314 04
Putnam		200 00	1,196 50	278 10	205 40
Richland	67 15		1,966 45	428 00	659 28
Ross	235 69		3,123 75	602 75	420 48
Sandusky					
Scioto					
Seneca	418 83		2,582 11	750 25	154 14
Shelby	419 76		2,035 50	549 13	168 00
Stark	12 53		3,282 87	805 50	343 11
Summit					
Trumbull	232 07		2,333 45	325 50	693 29
Tuscarawas	164 80		2,101 42	500 00	369 20
Union	1,465 64		3,399 84	523 50	200 25
Van Wert	13 15		563 46	55 00	729 12
Vinton					
Warren	94 37		3,989 36	963 44	4,203 67
Washington	54 47		2,114 96	72 00	729 33
Wayne					
Williams	41 86		1,357 64	191 10	
Wood		90 08	1,155 25	162 75	163 45
Wyandot	16 12		1,693 75	300 50	552 64
Totals			$133,130 54	$27,611 47	$25,198 32

FINANCIAL EXHIBIT OF COUNTY AGRICULTURAL SOCIETIES FOR THE YEAR 1880—Continued.

Counties.	Paid in premiums.	Paid for real estate, buildings and permanent improvements.	For current expenses other than premiums.	Amount in treasury.	Amount deficit.
Adams					
Allen	1,437 00	$657 03	$300 57		$61 70
Ashland					
Ashtabula	930 45	205 30	500 35		
Athens					
Auglaize	796 00	732 58	627 80		4 14
Belmont	1,317 00		454 31	$287 38	
Brown	1,080 50	515 38	908 15		3 13
Butler	759 00	1,063 46	4,267 50	99 60	
Carroll	1,131	1,000 00	813 50		
Champaign	367 00		652 00	81 18	
Clarke	2,042 25	423 88	707 86	234 78	
Clermont	1,100 00	495 00	438 00	521 50	
Clinton	1,661 50	393 75	656 25		2,140 83
Columbiana	1,337 79	384 18	1,617 12		
Coshocton	1,500 00	200 00	800 00	500 00	5,000 00
Crawford	1,433 80	457 57	1,103 11		41 72
Cuyahoga	484 95		402 48	129 71	2,000 00
Darke	1,190 60	2,258 94	2,649 67	402 51	
Defiance					
Delaware	887 00		2,801 41	23 34	
Erie					
Fairfield	3,786 00	4,409 52	1,705 13	3,431 07	
Fayette					
Franklin					
Fulton					
Gallia	1,543 00	203 96	249 56	102 25	
Geauga	1,803 50	474 83	641 95		
Greene	510 66	300 00	443 72		294 49
Guernsey					
Hamilton	1,756 75	57 70	719 16	584 53	

Hancock					
Hardin	1,277 50	461 92	701 87	612 65	
Harrison	1,055 00		690 00	100 00	
Henry					
Highland					
Hocking	1,090 00	132 43	444 65	18 92	
Holmes	1,219 35		915 59	711 25	
Huron	1,488 75	500 00	656 66		250 64
Jackson	329 35		124 11		
Jefferson	1,255 68		557 60	244 30	
Knox	1,947 80		1,520 62	177 41	
Lake	564 75	123 34	284 39	266 56	
Lawrence	899 35	527 35			
Licking	3,716 00	589 72	2,118 29		
Logan	2,957 71		1,475 68		418 62
Lorain	1,309 45	1,069 05	680 37		133 92
Lucas					
Madison					
Mahoning	1,741 80	520 37	986 90		10 28
Marion	1,954 50	1,120 90	812 00	6 37	
Medina					
Meigs	1,375 25	176 14	328 59	421 50	528 80
Mercer	1,139 00	430 00	203 90		
Miami	1,446 00		945 90		236 86
Monroe	530 75		296 55	157 18	
Montgomery					
Morgan	701 00	650 00	800 91	1 51	
Morrow	1,243 10	1,561 76	685 77		1,423 53
Muskingum	1,941 00	416 74	1,992 88	19 56	
Noble	386 62	43 43	165 04	18 89	
Ottawa	445 00	366 54	314 68	17 39	
Paulding					
Perry	1,072 40	333 30	476 70		160 07
Pickaway	1,198 00		1,042 00		287 26
Pike					
Portage	866 40	701 37	501 35		
Preble	1,884 40	1,000 00	2,158 57	394 38	
Putnam	981 70	528 75	138 00		168 45
Richland	1,362 50	225 00	1,432 75	100 63	
Ross	3,231 00		1,505 60	858 35	

FINANCIAL EXHIBIT OF COUNTY AGRICULTURAL SOCIETIES FOR THE YEAR 1880—Continued.

Counties.	Paid in premiums.	Paid for real estate, buildings and permanent improvements.	For current expenses other than premiums.	Amount in treasury.	Amount deficit.
Sandusky	......	......	......	......	......
Scioto	......	......	......	......	......
Seneca	$1,360 00	$740 00	$1,508 68	$296 65	......
Shelby	1,336 20	672 06	......	28 13	......
Stark	2,346 00	976 28	2,001 40	......	$879 67
Summit	......	......	......	......	......
Trumbull	1,749 00	833 84	789 66	211 81	......
Tuscarawas	946 75	600 00	1,511 19	77 48	......
Union	2,840 00	1,630 20	776 82	342 21	......
Van Wert	435 75	552 21	325 00	47 77	......
Vinton	......	......	......	......	......
Warren	2,660 75	523 60	5,546 69	520 40	......
Washington	1,641 25	507 05	775 90	46 56	......
Wayne	......	......	......	......	......
Williams	998 42	130 00	465 29	......	......
Wood	812 55	257 51	423 26	......	104 94
Wyandot	1,230 50	720 39	370 55	......	......
Totals	$91,924 83	$33,854 33	$62,911 66	......	......

VALUE OF REAL ESTATE, NUMBER OF MEMBERS, ETC., OF COUNTY AGRICULTURAL SOCIETIES FOR 1880.

Counties.	Number of acres in Fair Grounds.	Cash value of real estate and improvements thereon.	Number of members.
Adams	....	....	....
Allen	35	$1,800 00	155
Ashland	....	....	....
Ashtabula	20	3,000 00	281
Athens	28	6,500 00	625
Auglaize	25	3,300 00	714
Belmont	15	4,000 00	242
Brown	16	3,000 00	540
Butler	40	50,000 00	....
Carroll	25	....	500
Champaign	23	3,000 00	160
Clarke	50	51,000 00	383
Clermont	23	4,300 00	740
Clinton	32	10,000 00	1,042
Columbiana	23	2,500 00	550
Coshocton	34	21,500 00	300
Crawford	30	....	276
Cuyahoga	12	2,500 00	256
Darke	44	6,500 00	10
Defiance	....	....	....
Delaware	37	10,000 00	860
Erie	....	....	....
Fairfield	35	30,000 00	350
Fayette	....	....	....
Franklin	95	150,000 00	200
Fulton	40	4,500 00	200
Gallia	18	6,000 00	71
Geauga	20	3,000 00	584
Greene	36	....	187
Guernsey	....	....	....
Hamilton	36	30,000 00	600
Hancock	25	10,000 00	....

Value of Real Estate, Number of Members, etc., of County Agricultural Societies for 1880—Continued.

Counties.	Number of acres in Fair Grounds.	Cash value of real estate and improvements thereon.	Number of members.
Hardin	30	$8,000 00	163
Harrison	10	1,000 00	253
Henry	....	....	....
Highland	....	....	....
Hocking	7	1,500 00	256
Holmes	20	1,000 00	145
Huron	30	20,000 00	452
Jackson	....	....	225
Jefferson	12	6,000 00	80
Knox	18	10,000 00	250
Lake	13	300 00	582
Lawrence	20	5,000 00	29
Licking	63	70,000 00	1,178
Logan	25	7,000 00	2,407
Lorain	18	20,000 00	500
Lucas	43	60,000 00	58
Madison	....	....	....
Mahoning	22	5,000 00	12
Marion	36	16,000 00	385
Medina	22	6,000 00	600
Meigs	18	1,500 00	....
Mercer	35	6,000 00	45
Miami	40	12,000 00	498
Monroe	6	300 00	79
Montgomery	....	....	....
Morgan	20	3,000 00	675
Morrow	28	8,500 00	267
Muskingum	43	15,000 00	117
Noble	8	1,500 00	224
Ottawa	10	2,500 00	....
Paulding	25	1,250 00	75
Perry	20	2,500 00	400

Pickaway	18	6,000 00	400
Pike	.....	.....	.....
Portage	22	1,700 00	457
Preble	39	6,000 00	12
Putnam	10	4,500 00	250
Richland	25	10,000 00	.....
Ross	29	.....	223
Sandusky	.....	.....	.....
Scioto	.....	.....	.....
Seneca	24	10,000 00	220
Shelby	26	8,000 00	225
Stark	31	32,000 00	1,012
Summit	.....	.....	.....
Trumbull	28	12,000 00	1,103
Tuscarawas	25	5,000 00	277
Union	40	14,500 00	2,527
Van Wert	25	3,500 00	300
Vinton	.....	.....	.....
Warren	30	7,500 00	2,721
Washington	20	5,750 00	.....
Wayne	.....	.....	.....
Williams	20	3,500 00	1,070
Wood	4	800 00	454
Wyandot	24	6,000 00	383
Totals	1,899	$843,950 00	31,415

AGRICULTURAL STATISTICS FOR 1879.

[Received too late for Annual Report of 1879.]

The following tables exhibit the agricultural and horticultural products of Ohio for 1879, with the maple-sugar and sirup crop of 1880, and the number and value of animals dying from disease, sheep killed by dogs, and other items of agricultural interest, as returned by township assessors to county auditors in May, 1880.

These statistics should have been published in last year's annual Agricultural Report, but were not all received from county auditors by the Secretary of State until about four weeks after our annual volume was in type. They were, therefore, published in our November (monthly) Crop Report for 1880, and are here reproduced in full and placed side by side with those of 1880, and with the estimates for wheat, oats, and corn for 1881, that they may be permanently accessible for reference and comparison.

The final footings of each county auditor were carefully revised and corrected as soon as received, by the statistician in the office of the Secretary of State, and we are under obligations to that office for said revision, and have no doubt of its accuracy.

For the work of arranging, copying, tabulating, and making out averages and totals for the various crops, as well as for the accuracy of this work, the Agricultural Department is alone responsible.

The notes that follow each complete table were also prepared by the Secretary of the Board of Agriculture, and were designed to call attention to points of interest and value that might otherwise escape notice, and to break up the monotony of mere statistics. The tables have usually been printed "without note or comment" both in the Agricultural Report and the Statistical Report of the Secretary of State.

W. I. CHAMBERLAIN, *Secretary.*

WHEAT, RYE, AND BUCKWHEAT PRODUCED IN OHIO IN 1879.

Counties.	Wheat.		Average per acre in bushels and nearest tenth.	Rye.		Buckwheat.	
	Acres.	Bushels.		Acres.	Bushels.	Acres.	Bushe
Adams	18,481	173,549	9.4	462	1,782	44	404
Allen	28,274	578,553	20.5	212	3,549	87	858
Ashland	32,401	609,571	18.8	123	1,687	115	1,618
Ashtabula	13,071	173,539	13.3	249	2,871	517	8,031
Athens	17,230	180,213	10.5	233	1,831	253	3,510
Auglaize	31,536	657,166	20.8	239	3,650	127	1,590
Belmont	25,053	369,263	14.7	284¼	2,914	271½	3,319
Brown	27,777¼	278,553	10.	1,225¾	9,042	87	899
Butler	38,427	678,717	17.7	319	6,320	182	1,687
Carroll	16,705	214,530	12.8	242	2,167	263¼	3,127
Champaign	37,410	792,546	21.2	56	603	110	1,224
Clarke	33,887	741,813	21.9	215	3,672	28	375
Clermont	21,572	239,063	11.1	951	7,857	159⅓	1,692
Clinton	29,225	516,982	17.7	259	2,825	113	1,534
Columbiana	20,899	282,610	13.4	651	6,629	683	8,798
Coshocton	41,395	517,937	12.5	179¼	1,816	460½	4,855
Crawford	31.673	671.583	21.2	89	1,443	52	869
Cuyahoga	9,416	157,040	16.6	795	13,067	57	828
Darke	52,405	1,140,318	21.9	426	7,402	180	2,327
Defiance	23,788	478,610	20.1	191	3,913	248	3,129
Delaware	20,306	334,605	16.5	221	2,568	257	2,738
Erie	22,482	432,018	19.3	36	446	261	3,918
Fairfield	46,184	770,499	16.6	182	1,963	55	466
Fayette	24,636	423,766	17.2	216	2,705	18	323
Franklin	34,899	673,225	19.3	131	1,364	148	1,237
Fulton	27,709½	553,840	20.	289¾	3,648	749	9,249½
Gallia	29,777	285,058	9.6	171	1,301½	282¾	2,763
Geauga	5,254	70,306	13.4	37½	443	73¼	944
Greene	42,790	963,144	22.5	158	2,205	41	504
Guernsey	18,340	290,800	15.8	269	2,585	476	4,447
Hamilton	13,149	193,705	14.7	1,236	15,968	172	2,036
Hancock	45,375	936,702	20.6	135	1,807	159	1,725
Hardin	29,892	545,600	18.2	50	630	106	1,363
Harrison	14,940	233,863	15.4	114¼	1,144	110	1,372
Henry	22,845	466,449	20.9	768½	15,729	226¼	2,840
Highland	38,010	436,193	11.5	741	4,660	64	504
Hocking	11,940	136,932	11.5	427	3,436	275	2,107
Holmes	29,440	550,751	18.6	348	3,566	351	4,266
Huron	32,811	597,181	18.4	43	488	171	2,329
Jackson	11,795	89,448	7.6	201½	1,199	311	3,306
Jefferson	17,844½	267,676½	15.	160	1,516	134	1,588
Knox	31,723	493,308	12.4	284	2,533	531	5,457
Lake	5,619	85,947	15.3	283	4,218	240	4,253
Lawrence	16,206	135,817	8.4	81	648	75	915
Licking	38,819	591,156	15.2	467	4,889	388	4,806
Logan	36,086	694,384	19.2	114	1,743	110	1,378
Lorain	20,011	343,987	17.2	84	869	33	733
Lucas	13,097	287,737	21.4	448	7,572	558¾	7,320
Madison	15,136	267,117	17.6	144	1,695	16	265
Mahoning	12,983	167,469	12.9	309	3,201	288¾	3,736
Marion	22,433	440,570	19.6	110⅛	1,113	77¼	1,064

Wheat, Rye, and Buckwheat produced in Ohio in 1879—Continued.

Counties.	Wheat.		Average per acre in bushels and nearest tenth.	Rye.		Buckwheat.	
	Acres.	Bushels.		Acres.	Bushels.	Acres.	Bushels.
Medina	17,563	317,406	18.1	191	2,229	51	641
Meigs	21,337	218,370	10.2	349	3,591	346	4,752
Mercer	29,411	587,995	20.	265	4,195	136	1,649
Miami	39,353	960,058	24.4	269	4,223	108	1,541
Monroe	18,105¼	210,506	11.6	944⅜	7,963	553½	5,890½
Montgomery	37,654	837,398	22.2	223	3,324	56	786
Morgan	18,157	255,600	14.7	151	1,200	176	1,728
Morrow	15,395½	253,448	16.5	297¾	2,810	198½	2,297
Muskingum	33,380	446,606	13.4	402	4,531	215	2,894
Noble	17,910	228,415	12.8	278	2,418	335	5,477
Ottawa	16,711	319,114	19.1	325	5,769	104	1,648
Paulding	10,983	199,386	18.1	288	3,742	266	1,781
Perry	16,563	217,418	13.1	294	2,833	136½	1,050
Pickaway	48,991	883,297	18.	204	1,930	54½	886
Pike	12,242¾	133,229½	10.9	112½	714	68¾	783
Portage	16,376	263,902	16.1	236	2,578	99	1,081
Preble	30,877	589,218	19.1	135	1,450	66	862
Putnam	27,063	557,185	20.5	585	10,684	173	1,624
Richland	35,817	683,859	19.1	289	3,278	246	3,302
Ross	41,481½	670,256	16.1	414	2,727	76½	627
Sandusky	43,689	957,840	21.9	157	2,771	161	2,546
Scioto	12,805	140,670	10.9	16	129	110¼	1,170
Seneca	64,373	1,324,315	20.5	73	1,240	55	650
Shelby	34,212	654,487	19.1	292	4,057	228	2,722
Stark	52,147	1,041,489	19.9	351½	7,942	112	1,531
Summit	26,559	524,920	19.8	109	1,378	35	568
Trumbull	10,248	155,321	15.2	286	3,128	414	5,490
Tuscarawas	34,122	574,571	16.5	328	3,594	307	3,392
Union	20,673	335,714	16.2	70	699	89	1,386
Van Wert	19,569	381,792	19.5	452	7,061	202½	2,728
Vinton	9,514	88,501	9.2	204½	1,595	270½	2,269
Warren	27,838	528,677	19.	317	3,160	200	2,663
Washington	33,358	452,431	13.5	734	6,434	741	8,345
Wayne	49,207½	1,037,839	21.1	185¾	2,175	87½	959½
Williams	28,499	528,233	18.5	85½	1,124	143¾	1,877
Wood	30,488	591,180	19.4	872	16,387	441	6,164
Wyandot	32,431	690,064	21.3	59¼	1,040	65	741
Totals	2,318,260¾	41,052,120	17.7	26,506	318,995½	17,925¾	217,127½

Wheat ranks first of all the Ohio crops in commercial importance, bringing to the farmers of the State in 1879, at the average price of that year ($1.25), *over fifty-one million dollars* ($51,315,150.00). The corn crop, if all sold, would bring over forty-two millions, and the meadow hay twenty millions.

The above is the largest total yield of wheat ever raised in Ohio, being greater by about six million bushels than the crop of 1878, which was the largest up to that time. The yield per acre, too, is larger than any other, except that of 1850, which was 18 bushels, or 3-10 of a bushel more than this.

Rye is of little commercial importance, the total cash value of the crop for 1879 being less than a quarter of a million dollars ($223,226). In other words, where rye brings $1 to the farmers, wheat brings them $228. Rye is chiefly raised on account of the value of its straw for bands, bedding, packing, etc. Without the straw it is evidently not a paying crop in Ohio, and even with it scarcely pays except in the region of cities.

Buckwheat is of small commercial importance, bringing a total of $1 to $330 as compared with wheat. New York beats us in quantity and quality of this grain.

Oats, Barley, and Corn Produced in Ohio in 1879.

Counties.	Oats.		Barley.		Corn.		Average per acre (nearest bushels.)
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	
Adams	7,583	131,884	22	231	28,847	718,684	25
Allen	7.748	253,139	114	2,358	34,455	1,104,751	32
Ashland	15,843	594,393	114	2,783	23,276	840,027	36
Ashtabula	19,725	671,495	168	3,014	13,933	542,201	39
Athens	2,130	32,857	....	....	18,456	537,416	29
Auglaize	18,141	338,191	528	14,883	38,640	1,167,158	30
Belmont	10,905	217,501	205	3,023	27,045	1,050,427	39
Brown	9,364	178,508	34½	765	43,392¼	1,217,055	29
Butler	9,218	237,482	15,995	449,786	65,547	2,516,016	38
Carroll	13,582	383,545	20	417	13,852	411,001	29
Champaign	5,638	185,866	62	1,714	44,509	1,740,546	39
Clarke	4,295	144,035	142	5,279	43,821	1,458,505	33
Clermont	9,594	185,388	57	1.520	38,640	1,095,301	28
Clinton	3,788	104,303	56	1,363	59,174	1,905,133	32
Columbiana	17,835	508,185	111	1,901	18,569	731,410	39
Coshocton	8,780½	235,686	4	50	33,373	947,546	28
Crawford	15,967	574,671	182	4,122	30,231	1,078,647	35
Cuyahoga	13,680	541,862	322	7,621	11,220	531,075	47
Darke	15,869	567,620	1,486	48,921	71,611	2,552,199	36
Defiance	9,622	346,358	108	3,313	22,871	685,484	29
Delaware	6,603	195,687	4	102	38,430	1,354,814	35
Erie	7,633	285,034	1,552	36,708	16,243	735,837	45
Fairfield	3,750	103,964	905	26,886	52,484	1,839,400	35
Fayette	965	28,939	....	....	66,846	2,176,799	33
Franklin	4,976	130,735	46	989	68,822	2,367,185	34
Fulton	12,506½	453,428	77¾	2,353	23,623¼	1,007,783	43
Gallia	4,956½	63,607	....	....	24,777	582,382	24
Geauga	9,259½	337,253	44	830	6,220½	267,555	43
Greene	5,579	75,255	575	20,091	55,333	1,959,560	35
Guernsey	3,999	126,900	49	808	21,022	634,342	30
Hamilton	8,737	143,942	3,716	99,435	29,742	1,044,659	35
Hancock	6,062	123,647	103	2,743	45,849	1,567,231	53
Hardin	8,646	322,214	74	1,437	34,017	1,115,381	33
Harrison	4,994	175,265	17½	244	14,922	597,730	40
Henry	6,200	180,266	43	962	23,612	860,535	32
Highland	6,708	233,962	25	347	60,245	1,535,685	25
Hocking	7,177	151,562	15	276	14,779	406,115	27
Holmes	4,058	49,372	67	1,284	22,914	643,402	28
Huron	15,804	541,417	636	12,513	28,710	973,462	34
Jackson	18,817	714,660	2	20	16,744	342,559	20
Jefferson	5,942	82,955	160	3,062	14,938	619,130	41
Knox	10,395	285,618	15¼	220	36,895	1,093,581	29
Lake	10,096	297,998	1,224	23,217	5,891	236,065	40
Lawrence	4,788	155,806	30	570	19,488	359,461	18
Licking	8,812	231,842	15	406	52,607	1,879,332	36
Logan	3,849	111,956	26	646	39,918	1,427,216	36
Lorain	14,189	545,913	2,036	58,373	18,922	709,936	37
Lucas	7,011	240,514	455	12,229	15,330	835,248	54
Madison	1,380	38,864	....	....	69,588	2,266,238	32
Mahoning	13,018	400,654	184	1,312	13,772½	660,607	48
Marion	9,839¾	339,682	14	280	43,515	1,565,561	36
Medina	15,193	560,480	59	1,201	16,370	580,236	35

Oats, Barley, and Corn Produced in Ohio in 1879—Continued.

Counties.	Oats.		Barley.		Corn.		Average per acre (nearest bushels.)
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	
Meigs	3,516	55,475	106	1,624	18,050	480,348	26
Mercer	20,533	466,303	230	6,460	35,281	1,072,189	30
Miami	9,440	322,259	1,791	64,301	52,845	1,953,711	37
Monroe	8,756¾	147,066	19	139	18,572¾	549,184	29
Montgomery	13,476	448,642	3,322	111,088	47,893	1,621,763	34
Morgan	2,576	42,655	11	141	17,501	618,948	35
Morrow	12,421	364,230½	43	645	26,426½	789,683	29
Muskingum	6,660	133,190	58	1,028	34,536	1,067,896	31
Noble	5,046	87,232	....	....	19,732	743,509	38
Ottawa	3,983	139,494	372	9,496	13,539	513,598	38
Paulding	3,440	92,820	16	280	10,672	291,669	27
Perry	2,713	50,989	143	4,574	18,813	480,594	25
Pickaway	848½	21,838	209	7,242	87,764	3,441,184	39
Pike	6,525	99,102	484	10,850	27,187	680,436	25
Portage	13,923	456,981	59	1,051	12,028	595,487	49
Preble	11,376	354,051	1,160	37,294	47,798	1,712,170	36
Putnam	5,205	166,684	52	1,050	33,091	1,144,093	34
Richland	23,228	717,635	167	3,944	28,475	781,564	24
Ross	3,265½	58,911	90	2,875	75,688¾	2,595,140	34
Sandusky	10,135	375,262	242	6,763	29,258	1,122,358	38
Scioto	10,039	140,229	382	8,459	24,951	672,081	27
Seneca	15,439	581,885	93	2,037	36,000	1,240,545	34
Shelby	13,065	432,433	1,096	29,110	41,380	1,367,021	33
Stark	23,934	924,873	1,121	27.243	25,297	1,325,378	52
Summit	14,581	737,479	26	544	14,600	943,988	65
Trumbull	14,888	468,097	10	247	14,389	810,074	57
Tuscarawas	18,907	538,949	152¾	4,116	22,894	690,306	32
Union	4,812	130,659	10	285	46,792	1,611,145	34
Van Wert	7,196½	231,341	104	1,127	26,351½	881,513	33
Vinton	2,724	38,757	....	....	12,199	305,611	25
Warren	9,442	273,744	7,030	236,916	53,968	2,108,301	39
Washington	7,906	120,574	9	177	24,058	697,434	29
Wayne	22,892½	890,233	313	7,375	29,648	1,163,852	39
Williams	13,040	465,828	89	1,732	23,600	889,524	28
Wood	15,508	527,732	832	22,053	48,075	1,780,933	37
Wyandot	7,310	258,707	47	763	31,305	1,089,961	35
Totals	840,001½	25,524,699½	51,688¾	1,475,637	2,824,480	96,908,800	34

Corn ranks next to wheat in commercial importance. (See notes under preceding tables). The gross value per acre, too, ranks next to wheat, being $15 against $23 for wheat in 1879. The cost per acre for cultivation is, however, greater, but is, in part, balanced by the value of the stalks of "fodder," if used.

If a "corn map" like the wheat maps, after page thirty, were prepared, it would show a curious fact. The very heavy averages per acre are nearly all in North-eastern Ohio. We are inclined to the belief that in these North-eastern counties "bushels of ears" are at least in some cases reported instead of shelled corn. At all events, the blanks furnished to the township assessors should hereafter clearly show that "*shelled corn*" is to be reported.

Oats.—The total value of the oat crop for 1879 is as one to seven compared with wheat, the crop was a full average of former years, but gives only $9 per acre against $23 for wheat. On the whole, oats seems not to be a paying crop in Ohio, year with year.

Barley is a small and unimportant crop commercially, and is not much raised except in a few localities. Its total value in the State is as one to fifty-four compared with wheat. Its gross value per acre, however, is $18.

MEADOW AND CLOVER SEED PRODUCED IN OHIO IN 1879.

Counties.	Meadow.		Clover.			
	Acres.	Tons hay.	Acres.	Tons hay.	Bushels seed.	Acres plowed under.
Adams	9,856	7,027	3,141	821	1,060½	354½
Allen	11,881	14,527	7,448	6,996	8,567	1,017
Ashland.........	22,634	21,434	8,933	8,001	9,770	149
Ashtabula......	46,231	49,241	1,301	1,652	428	135
Athens..........	15,981	12,263	489	410	66	12
Auglaize	9,927	10,374	5,244	5,300	4,900	810
Belmont	26,728	19,645	2,194	1,905	509	106
Brown	14,150½	10,952	7,409¾	954¾	204	619
Butler...........	8,489	7,378	15,430	4,346	735	3,744
Carroll	25,474	21,242	2,276	2,065½	353	22½
Champaign.....	7,637	8,980	7,896	6,862	5,441	580
Clarke	10,605	12,332	9,724	6,858	6,377	1,583
Clermont........	14,859	11,543	5,628	1,527	133	1,659
Clinton	9,364	10,167	3,072	1,823	1,394	266
Columbiana....	31,898	29,164	7,508	7,364	2,093	54
Coshocton.......	22,007	22,684	3,117	2,119	630	38
Crawford	19,205	20,008	7,249	7,149	4,779	321
Cuyahoga	34,328	37,164	592	725	74	96
Darke	9,968	10,774	15,548	9,053	4,058	3,137
Lefiance	10,878	13,277	6,186	6,315	11,397	576
Delaware........	24,475	21,785	4,236	4,430	3,987	177
Erie..............	8,666	11,081	4,990	4,917	5,756	1,077
Fairfield.........	12,601	14,892	10,291	7,748	8,727	209
Fayette	6,692	4,974	1,792	534	177	83
Franklin	16,663	14,676	5,055	3,225	2,105	940
Fulton	13,828¾	16,422	7,741¼	9,126½	11,125¾	725
Gallia	11,099	8,895	1,190½	380	10	205
Geauga	30,868	32,971½	608	823	1	238
Greene...........	9,191	10,403	7,631	3,387	2,585	2,416
Guernsey	27,378	17,605	1,344	968	292	35
Hamilton	12,230	12,525	4,381	4,378	9	819
Hancock	12,718	16,469	11,607	12,596	15,840	658
Hardin.....	11,750	13,904	4,631	4,657	4,941	529
Harrison	27,667	27,458	1,089	1,167	142	5
Henry	6,655	8,614	3,795	4,405	4,925	290
Highland	17,756	15,205	2,228	1,084	1,253	88
Hocking	9,663	8,417	1,088	889	511	79
Holmes	14,799	14,781	9,391	8,428	4,737½	19
Huron	29,264	27,631	7,295	6,402	6,536	919
Jackson	13,583	9,416	143	54	13	9
Jefferson	23,561	49,073	1,192	963	655	198½
Knox	22,561	24,652	4,968	3,960	2,732	102
Lake.	12,984	13,695	1,290	1,464	355	192
Lawrence	5,423	3,672	2,338	342	6	231
Licking	31,638	31,136	5,348	5,112	2,398	187
Logan............	12,149	12,901	9,292	7,962	5,653	398
Lorain	37,989	38,281	2,477	2,345	2,479	620
Lucas	10,626	13,713	3,996	3,986	4,414	442
Madison.........	12,997	11,759	1,717	1,207	156	203
Mahoning	29,860½	31,334	7,414	8,093	3,942	212
Marion...........	15,472½	16,232	6,371	5,918	4,810	185
Medina	28,533	28,231	8,488	7,852	11,171	357
Meigs	14,055	10,033	867	500	29	242
Mercer...........	10,532	13,592	7,040	7,274	6,113	547
Miami	5,655	5,828	10,612	7,344	5,146	2,333

Meadow and Clover Seed Produced in Ohio in 1879—Continued.

Counties.	Meadow.		Clover.			
	Acres.	Tons hay.	Acres.	Tons hay.	Bushels seed.	Acres plowed under.
Monroe	16,093	10,564½	1,416¾	1,110	797½	17
Montgomery	9,122	11,138	16,087	9,296	3,961	4,632
Morgan	14,957	11,465	3,043	3,471	1,437	133
Morrow	26,144¼	22,673	3,787¾	3,518	2,192¼	30
Muskingum	31,107	23,534	3,659	2,950	835	144
Noble	17,284	27,702	788	519	145	15
Ottawa	6,738	9,317	2,784	4,300	1,847	215
Paulding	6,336	7,933	1,238	1,249	1,470	213
Perry	16,322	14,578	1,270	1,158	1,007	24
Pickaway	11,297	5,923	5,455	2,472	2,998	388
Pike	6,091½	6,316	1,100¼	220	11	351½
Portage	31,982	33,450	6,033	7,213	3,311	690
Preble	6,537	6,502	15,036	5,461	3,405	1,677
Putnam	10,876	14,638	4,979	5,628	5,062	780
Richland	22,390	21,490	10,965	8,331	3,639	241
Ross	9,797¼	7,407	5,990¾	1,472	1,191½	1,212
Sandusky	9,505	9,916	9,960	9,714	8,465	651
Scioto	9,227	7,512	1,325	464	90	220
Seneca	16,933	17,330	18,203	16,071	16,802	2,797
Shelby	7,924	7,860	7,794	5,220	3,673	1,214
Stark	23,000	25,458	18,509	21,135	7,687	1,880
Summit	17,372	21,011	10,953	12,295	4,162	1,210
Trumbull	56,475	58,935	2,092	2,449	990	302
Tuscarawas	26,950	26,102	8,969	7,663	1,946	347
Union	16,473	14,106	4,454	4,464	2,769	163
Van Wert	10,158½	13,258½	3,021	3,245	4,026	282
Vinton	9,904	7,347	206	118½	30	43
Warren	10,186	10,654	8,624	2,520	549	2,239
Washington	21.385	15,800	2,596	2,057	746	289
Wayne	21,063½	24,919½	20,518½	21,083½	14,712¼	1,079½
Williams	13,598	15,928	9,092	9,252	21,082	281
Wood	13,790	18,090	6,664	7,194	8,333	663
Wyandot	13,435	15,640	6,081	5,656	6,603	1,043
Totals	1,494,136¼	1,506,980	507,016½	415,134	322,703½	56,614½

Hay.—It is sometimes stated that the hay crop of the United States is the most valuable of all. This is certainly not true of the Ohio crop for 1879, where, even at $10.00 per ton (a high average for that year for Ohio), and including the clover hay, it ranks far below wheat and corn, giving a total cash value of $19,221,140, against $51,315,510 for wheat, and $42,639.872 for corn. The cost per acre, however, for labor, etc., is smaller than for most other crops. But hay is not sold for cash as largely as wheat, or even corn, but enters into other articles, such as butter, cheese, wool, meat, horse-muscle, etc. So that, really, to figure the value of the hay crop and then of these secondary products involves, in part at least, a "double count." It is a case where "figures will lie" unless rightly interpreted.

Clover seed brings in, at $5 a bushel, $1,613,515, or a total of $1 to $32 as compared with wheat. It is a second crop, that is, it comes after a large crop of hay from the same ground the same season, and is a crop of no little real importance.

FLAX, POTATOES, AND SWEET POTATOES PRODUCED IN OHIO IN 1879.

Counties.	Flax.			Potatoes.		Sweet potatoes.	
	Acres.	Bushels seed.	Pounds fibre.	Acres.	Bushels.	Acres.	Bushels
Adams	14	40	....	452¾	34,969	23½	1,653
Allen	2,568	17,126	387,500	933	81,273	6	582
Ashland	1,474	11,095	472,100	981	86,755	4	121
Ashtabula	17	42	2,128	3,163	253,353	⅛	56
Athens	....	....	....	1,497	97,997	20	2,459
Auglaize	1,849	14,291	62,700	1,486	87,673	3½	154
Belmont	6	5	....	1,270	97,252	9⅝	929
Brown	82	635	....	2,542¼	188,482	27¾	1,742
Butler	1,256	8,030	90	1,196	89,493	41	2,767
Carroll	6	52	....	578	53,632	⅛	54
Champaign	1,017	7,767	....	808	68,957	9	730
Clarke	1,720	11,476	132,600	1,107	81,025	34	4,698
Clermont	258	1,470	4,300	8,053	521,596	96	6,724
Clinton	2,026	12,528	69,700	2,074	166,607	27	1,605
Columbiana	380	2,935	53,060	1,537	131,357	5	305
Coshocton	½	1	....	920	73,181	8⅛	159
Crawford	661	5,484	....	1,557	109,567	12	336
Cuyahoga	....	....	....	4,110	320,577	....	28
Darke	8,375	52,479	150,028	2,305	179,919	43½	3,484
Defiance	13	215	....	925	97,118	8½	582
Delaware	1,005	7,040	18,700	1,072	79,616	1	72
Erie	....	....	....	1,905	196,014	4¾	530
Fairfield	....	....	....	1,691	122,654	95	5,331
Fayette	100	816	64	573	48,762	29	1,494
Franklin	3	....	2	2,753	152,516	15	1,115
Fulton	81	851	....	1,311¼	124,545½	26½	1,403
Gallia	....	2	....	1,243	96,724	15⅞	1,311
Geauga	2,234	2,225	194,203	1,607	134,464	....	....
Greene	2,765	12,305	417,227	980	61,613	44	3,358
Guernsey	....	....	....	597	29,763	7¾	286
Hamilton	29	1	....	3,922	279,175	252	15,243
Hancock	3,773	26,726	136,042	1,268	107,069	4	594
Hardin	1,386	10,019	....	1,106	90,870	4¼	374
Harrison	....	....	....	459	44,285	⅞	137
Henry	5	73	....	1,090½	103,353	⅝	58
Highland	1	13	15	2,243	169,645	35	2,152
Hocking	5½	24	56	1,005	66,390	33¾	1,473
Holmes	8⅛	78	50	827	73,422	2¼	375
Huron	182	1,019	....	1,075	1,614	11	685
Jackson	2	7	60	590¼	47,045	9	802
Jefferson	....	....	....	813¾	59,922	1½	66
Knox	3,009	22,195	795	1,059	95,221	6	214
Lake	10	63	2,000	1,545	125,100	2	26
Lawrence	....	....	....	658	38,986	63	4,891
Licking	1,091	8,005	....	1,911	145,407	9½	755
Logan	264	1,757	....	790	58,035	8⅞	666
Lorain	120	823	21,060	1,704	147,504	19	2,063
Lucas	173	1,688	....	2,269½	157,212	1½	97
Madison	170	1,339	....	505	34,981	12	78
Mahoning	928⅜	7,018	502,290	1,206	118,761	¾	183
Marion	1,054	6,809	230	1,109½	84,094	2	154
Medina	1,640	14,374	155,300	1,086	97,659	1½	291
Meigs	....	....	....	2,169	146,915	21	1,588
Mercer	2,923	19,399	5,900	981	67,756	4	115

FLAX, POTATOES, AND SWEET POTATOES PRODUCED IN OHIO IN 1879—Continued.

Counties.	Flax.			Potatoes.		Sweet Potatoes.	
	Acres.	Bushels seed.	Pounds fibre.	Acres.	Bushels.	Acres.	Bushels.
Miami	8,289	55,743	249,782	1,377	107,433	48	3,617
Monroe	⅜	1½	....	973¾	53,018	14¾	405
Montgomery	3,711	24,130	805,319	1,643	107,287	153	9,335
Morgan	⅓	2	....	730	48,633	33½	2,749
Morrow	2,491½	16,811½	175	902¼	76,727	1½	112
Muskingum	....	....	....	1,543	104,945	45	6,916
Noble	....	....	....	534	32,320	16½	644
Ottawa	....	....	....	835	71,640	1½	132
Paulding	57	294	....	488	44,596	11	245
Perry	7¼	49	....	928	68,468	32¼	1,681
Pickaway	....	....	....	1,059	78,682	33⅛	2,006
Pike	2⅞	10	50	779⅞	62,688	7⅞	802
Portage	548	4,684	240,870	2,725	246,647	½	34
Preble	8,416	47,530	39,009	834	69,601	30½	2,749
Putnam	325	1,718	14,000	1,140	106,721	22	363
Richland	466	3,127	6,000	1,568	123,113	¾	174
Ross	¾	3	25	1,360½	102,147	14¾	1,518
Sandusky	9	60	....	1,530	133,895	8¼	854
Scioto	⅛	....	20⅓	1,264	94,119	28¼	2,939
Seneca	657	4,815	....	1,829	122,750	14	229
Shelby	3,978	27,017	15,324	981	73,056	2	231
Stark	234	2,061	73,455	1,750	192,536	8	675
Summit	....	....	....	1,508	139,294	3	370
Trumbull	1,214	12,393	1,202,890	1,880	164,333	3	242
Tuscarawas	8	54	....	1,325	111,059	4	450
Union	940	5,887	130,000	770	62,317	¾	35
Van Wert	1,788	11,565	1,200	706⅝	62,960	5⅛	287
Vinton	⅜	1	50	593	39,452	17½	878
Warren	2,799	17,633	235,355	2,669	199,761	142	15,528
Washington	2	2	20	2,407	151,321	154	14,323
Wayne	946½	6,161½	724,593	1,694¾	157,447	34¼	747
Williams	516	3,256	....	813	85,820	8¾	913
Wood	124	733	....	1,626	150,895	1⅓	82
Wyandot	388	2,564	....	912	72,700	1	63
Totals	80,603⅝	538,645½	6,528,337⅓	126,298⅜	9,747,166½	2,132¾	146,476

Flax.—This crop, too. is of very unequal distribution through the State, though not for lack of adaptation of soil and climate. The total production has much decreased since the change in the tariff on jute. It was formerly considered one of the best paying crops by those interested in its production.

Potatoes.—The average yield for 1879 is about 77 bushels per acre, which, at 40 cents per bushel, gives a gross value of $31 per acre. The labor involved is, however, greater than for corn. The total value of the crop for 1879 is $3,898,664. The value of the crop, as compared with wheat, is as 1 to 13. The crop is quite evenly distributed through the State, as is seen by the above tables, though it is for obvious reasons larger in the vicinity of large cities. It is decidedly a paying crop on good soil when well tilled.

Sweet Potatoes bring in, at $1 per bushel, $146,476, or $70 per acre, and $1 to $350 as compared with wheat. The industry is not large in the State, as the New Jersey and Southern potatoes are preferred.

BUTTER, CHEESE, AND SORGHUM PRODUCED IN OHIO IN 1879, AND MAPLE SUGAR IN 1880.

Counties.	Butter.	Cheese.	Sorghum.			Maple sugar in 1880.	
	Pounds.	Pounds.	Acres.	Pounds sugar.	Gallons syrup.	Pounds.	Gallons syrup.
Adams	325,247	601	297½	108	20,437	205	625
Allen	494,636	12,085	156½	50	10,319	2,420	2,065
Ashland	736,428	449,338	15	27	1,173	57,905	14,312
Ashtabula	1,082,405	4,245,916	4¾	....	663	283,934	11,216
Athens	442,596	6,570	233	71	19,284	933	1,026
Auglaize	391,906	575	398	98	16,698	722	764
Belmont	717,652	6,786	245¾	46	23,207	50	1,731
Brown	531,383	170	302⅜	....	20,454	10	340
Butler	509,968	2,635	84	....	7,241	140	1,012
Carroll	657,674	....	40	....	3,529	1,265	513
Champaign	406,395	19,920	89	....	12,265	12,373	7,752
Clarke	469,461	680	68	92	6,857	250	252
Clermont	564,432	140	267	217	16,861	10	367
Clinton	347,504	1,732	138	....	7,981	10,489	7,144
Columbiana	866,763	346,447	35	46	2,799	9,721	8,558
Coshocton	665,990	790	89¼	62	6,481	408	322
Crawford	623,922	1,200	46	231	3,914	3,842	4,571
Cuyahoga	812,758	1,065,840	3	29	249	52,319	7,190
Darke	803,710	733	545	15	47,334	256	3,177
Defiance	461,448	160,713	171	....	16,288	1,142	201
Delaware	674,463	1,450	67	15	4,722	12,177	14,228
Erie	366,354	20,103	14⅞	....	1,378	10,169	678
Fairfield	689,512	350	145	22	11,103	1,636	3,956
Fayette	290,639	400	42	45	3,238	....	174
Franklin	663,021	650	51	257	3,406	600	947
Fulton	636,382	589,765	67¼	71	6,937½	....	129½
Gallia	438,705	3,208	491½	....	34,536	315	30
Geauga	848,948	3,254,565	....	....	....	513,764	7,141
Greene	439,177	240	47	9	4,151	9,050	6,695
Guernsey	625,189	795	401	100	21,736	25	95
Hamilton	520,172	9,065	303	242	1,254	....	411
Hancock	728,728	650	42	25	3,570	4,994	5,942
Hardin	466,421	490	75	....	4,711	2,835	1,750
Harrison	519,263	390	65½	13	6,023	10	707
Henry	374,297	320	136¾	....	11,644	124	261
Highland	553,307	845	241	....	17,141	737	1,862
Hocking	351,444	670	181¼	36	11,914	292	257
Holmes	514,505	138,571	33½	....	2,381	7,160	1,603
Huron	1,047,849	1,147,095	126	90	1,933	35,733	6,908
Jackson	354,411	1,170	374	....	28,345	100	20
Jefferson	479,662½	3,100	61¼	....	4,641	735	1,870
Knox	742,945	430	41¼	132	2,485	26,464	10,566
Lake	333,353	163,546	....	....	....	44,100	2,068
Lawrence	216,739	706	685	490	57,495	135	37
Licking	962,982	8,327	99	....	6,950	6,632	13,586
Logan	482,238	180	96	....	7,499	221,054	21,074
Lorain	808,781	3,847,189	30	621	3,186	59,386	5,209
Lucas	386,719	....	45⅞	33	3,305	....	35
Madison	284,932	7,196	21½	2	1,772	157	30
Mahoning	569,532	16,150	10⅛	....	872	43,022	23,004
Marion	470,271	225	51	....	4,243	741	821
Medina	1,037,943	1,377,380	4½	177	140	127,868	16,810
Meigs	505,473	20,818	313	4	24,299	385	84
Mercer	457,810	1,170	429	....	29,844	324	772
Miami	573,729	2,485	196	....	20,748	2,140	5,113

BUTTER, CHEESE, ETC., PRODUCED IN OHIO IN 1879, MAPLE SUGAR IN 1880—Continued.

Counties.	Butter.	Cheese.	Sorghum.			Maple sugar in 1880.	
	Pounds.	Pounds.	Acres.	Pounds sugur.	Gallons syrup.	Pounds.	Gallons syrup.
Monroe	438,667	834,169	536	192	42,100½	1,370	195
Montgomery	690,014	500	147	186	14,030	2,761	5,356
Morgan	477,376	1,151	263	175	23,017	25	377
Morrow	670,774	550	26⅛	434	2,078	21,624	15,180
Muskingum	912,829	40	179	....	14,296	94	195
Noble	569,276	3,857	511	169	39,343	195	146
Ottawa	219,163	170	74	165	5,222	25	40
Paulding	203,427	410	152	51	11,451	480	85
Perry	474,244	....	119	....	8,855	5,791	4,706
Pickaway	440,478	480	123	20	9,036	420	901
Pike	200,941	180	245	100	17,129	462	402
Portage	911,910	2,061,111	1	....	27	137,982	46,449
Preble	516,703	....	209	106	18,428	1,089	3,645
Putnam	475,499	358	184	17	15,762	956	918
Richland	793,320	4,087	30½	....	1,351	23,836	15,715
Ross	355,778	13,270	168½	....	13,145½	381	2,867
Sandusky	547,793	2,400	65	....	5,877	200	293
Scioto	226,569	944	465¼	35	32,858	14	27
Seneca	815,672	....	48	24	4,615	7,146	4,171
Shelby	406,090	100	257¼	321	21,868	686	400
Stark	932,023	76,480	88⅜	511	991	13,204	7,822
Summit	843,512	822,479	¾	12	86	25,008	6,208
Trumbull	1,014,119	4,186,602	19	711	943	127,608	18,588
Tuscarawas	692,023	543,036	94½	138	5,940	949	964
Union	496,827	10,378	76	....	6,456	65,158	7,333
Van Wert	343,595	300	200⅜	....	16,653	475	112
Vinton	246,120	150	238	....	17,995	842	240
Warren	559,720	2,252	119	1,129	9,081	6,889	3,191
Washington	610,384	10,295	521	94	40,851	79	264
Wayne	1,040,545	54,349	9¼	50	842	17,194	6,076
Williams	721,206	92,000	58¾	....	4,562	2,683	1,011
Wood	685,693	481	164	....	13,091	646	644
Wyandot	419,882	3,630	12½	120	1,038	936	1,258
Totals	50,282,346½	25,667,774	13,621¼	8,236	1,010,654½	2,038,466	383,791½

Butter is of very uniform production throughout the State, and is of large commercial importance. As reported, it brought a revenue of over ten million dollars in 1879, or one fifth as much as wheat. Still it is plain that the entire product is not reported, for that would give only five ounces per week for each person in the State, and that figure does not nearly equal the consumption, whereas butter is largely exported from Ohio. Doubtless that made for home use is not reported above at all, and even that sold seems inadequately reported.

Cheese.—This product, too, seems to be not fully reported. For example, Summit county reports only 822,479 pounds for 1879, while a single firm in that county that year, S. Straight & Son, made, as shown by their books, more than twice that amount, or 1,752,636, three-fourths of the amount being made from Summit county milk, and many other private dairies and factories in the county also making cheese. But even as reported it brings to the Ohio farmers over two million dollars, or $1 to $25 as compared with wheat. Unlike butter, cheese is mainly produced in about twenty northerly counties, though its production is gradually spreading over a large area.

Sorghum brings in about half a million dollars, or $1 to $100 as compared with wheat. It seems not to be decreasing in favor and in production, notwithstanding Commissioner Le Duc's efforts. In Ohio, as reported, it yields $38.00 per acre, a small gross product for the labor involved.

Maple Sugar and Syrup bring in about half a million, too It is a paying crop for those who have "maple sugar orchards" and its production might be considerably increased both in quantity and quality. A prime article of maple syrup will always bring a remunerative price.

LANDS OWNED IN OHIO IN 1879.

Counties.	Acres cultivated.	Acres pasture.	Acres wood.	Uncultivated waste lands.	Total acres owned.
Adams	71,835	75,682	78,764	9,178	218,140
Allen	100,990	27,744	67,932	3,448	206,677
Ashland	106,871	64,393	53,654	1,391	236,414
Ashtabula	86,975	227,317	127,362	....	441,654
Athens	52,083	108,804	65,181	4,429	236,083
Auglaize	106,480	18,371	68,869	2,649	197,556
Belmont	91,944	128,957	66,701	6,391	293,993
Brown	117,116	72,817¼	78,340⅝	11,439½	256,608½
Butler	131,497	25,391	33,020	11,706	203,257
Carroll	83,705	97,980	52,209	6,021	226,173
Champaign	162,561	29,123	61,789	3,742	257,215
Clarke	108,406	46,279	34,861	3,234	192,780
Clermont	111,971	50,143	39,253	9,993	218,057
Clinton	105,670	47,682	41,597	2,846	197,789
Columbiana	89,368	95,818	59.818	4,157	263,087
Coshocton	99,898	118,193	77,991	3,163	315,347
Crawford	124,058	38,100	48,523	2,036	212,717
Cuyahoga	86,510	82,920	28,506	3,710	201,646
Darke	201,088	23,646	97,904	7,524	331,831
Defiance	86,201	9,361	71,996	1,686	168,290
Delaware	84,538	91,351	51,819	1,561	229,278
Erie	84,271	18,276	14,936	4,686	122,168
Fairfield	132,057	81,911	53,651	5,295	272,077
Fayette	98,756	67,575	36,404	2,033	204,861
Franklin	127,152	55,980	38,304	8,582	230,016
Fulton	99,638⅝	20,475¼	63,384¾	6,327¼	199,895½
Gallia	74,201⅝	82,190	60,868	7,994	231,617¼
Geauga	55,780	116,170½	41,736	1,533	214,630½
Greene	127,188	38,979	42,498	6,702	215,367
Guernsey	75,195	135,292	68,547	1,346	287,344
Hamilton	78,538	26,093	12,525	10,349	92,276
Hancock	153,454	41,960	90,343	3,154	288,910
Hardin	103,145	34,633	63,674	3,706	208,744
Harrison	49,909	122,203	44,142	911	225,137
Henry	75,794½	3,794	54,974½	3,803	137,749½
Highland	117,433	111,898	70,674	5,489	305,494
Hocking	40,566	82,228	64,090	5,727	192,611
Holmes	101,203	65,544	63,512	1,457	231,116
Huron	138,436	83,826	49,699	3,466	275,427
Jackson	46,073	98,351	43,958	7,995	196,377
Jefferson	73,744¼	85,278¼	50,925	2,307½	112,255
Knox	104,435	155,928	57,919	6,040	324,322
Lake	41,759	35,652	17,590	2,158	97,758
Lawrence	53,090	32,493	46,616	29,161	163,861
Licking	137,620	167,607	74,951	2,117	373,195
Logan	113,845	47,920	60,963	3,066	227,260
Lorain	91,323	119,157	45,993	2,608	259,081
Lucas	59,123	8,041	28,495	10,183	105,842
Madison	79,642	106,151	40,455	4,959	231,207
Mahoning	74.923	74,307	42,691	1,132	193,053
Marion	98,069½	60,925½	44,536	3,370	206,957½
Medina	92,939	87,571	44,777	2,253	229,619
Meigs	69,483	83,906	63,588	3,963	220,940
Mercer	119,927	20,405	99,963	24,443	264,738
Miami	150,544	16,124	40,837	4,374	211,879
Monroe	95,306⅜	66.719¾	70,974½	8,383½	233,374
Montgomery	159,204	25,793	42,176	8,394	235,567

Lands Owned in Ohio in 1879—Continued.

Counties.	Acres cultivated.	Acres pasture.	Acres wood.	Uncultivated waste lands.	Total acres owned.
Morgan	50,875	111,889	55,089	1,486	219,149
Morrow	80,682½	74,418¼	51,170¾	18,464¾	205,323
Muskingum	126,588	161,009	77,806	4,401	378,906
Noble	65,849	112,394	50,509	2,537	231,289
Ottawa	52,226	10,955	32,493	6,804	124,073
Paulding	41,141	2,863	56,759	5,063	102,532
Perry	67,733	101,339	43,225	759	209,836
Pickaway	147,915	65,075	48,886	12,412	256,782
Pike	57,351¾	46,632	71,548¼	10,679½	214,115½
Portage	82,859	113,377	47,477	7,073	261,088
Preble	136,983	29,503	53,614	12,209	232,349
Putnam	101,458	10,193	82,421	4,179	202,340
Richland	144,735	45,263	63,008	5,008	263,647
Ross	130,970¾	94,778½	85,142⅞	21,322½	234,031¼
Sandusky	123,944	13,306	52,366	9,072	2,011,294
Scioto	57,883	28,641	70,194	17,346	197,706
Seneca	195,386	33,780	73,833	3,362	313,204
Shelby	120,642	15,731	61,905	3,845	201,723
Stark	163,019	52,703	46,641	7,278	269,641
Summit	97,532	72,790	30,975	8,620	209,459
Trumbull	58,712	153,020	73,361	1,918	324,079
Tuscarawas	111,637	113,016	65,935	9,684	299,787
Union	95,485	72,218	40,418	1,531	219,943
Van Wert	77,154	8,272	73,877	1,851	161,154
Vinton	38,245	70,800	67,077¾	20,098½	196,221¼
Warren	105,122	34,877	39,638	13,535	308,140
Washington	105,135	106,764	103,568	8,565	325,032
Wayne	171,000½	47,815¾	59,243¼	3,332¾	282,206½
Williams	117,360	25,188	71,017	3,136	216,701
Wood	137,754	12,485	83,375	5,357	238,971
Wyandot	103,492	49,660	45,976	3,319	202,447
Totals	8,770,402⅞	5,852,185	5,036,008¼	544,010¾	22,131,086⅓

Cultivated Land.—It will be well to ascertain, even approximately, the income of the different kinds of land. If we take the sum of all the items on page 322, except butter, cheese, wool, and meat (which are secondary products, formed of grass, hay, and grain, and hence, are rejected to prevent a double count), we have a total of $138,315,547, which may fairly be counted as the income of the 8,770,402 acres of "cultivated land," including meadow, orchards, etc. This gives an income of $15.75 per acre.

Pasture Land.—If we credit to this one half of the butter, cheese, wool, beef and mutton, it will give $11,789,230 for the 5,852,185 acres "pasture," or almost exactly $2 per acre. This plainly shows that the more labor we expend on Mother Earth, the more money does she return to us. To increase our revenue we have but to reclaim much of this rough "pasture land," and put it under cultivation, with a rotation of crops under a wise system of recuperative farming.

Wood land.—The wood lands of Ohio are about one-fourth of the entire area, which is probably not too large a proportion. They are not unproductive, but even by their growth will yield, without exhaustion, in wood and timber, $2 per acre, or as much as the pasture land. They are so estimated in the following table:

WOOL PRODUCED, SHEEP KILLED AND INJURED, AMOUNT OF INJURY IN OHIO IN 1879.

Counties.	Wool.	Sheep killed.		Sheep injured.		Aggregate amount of injury to sheep by dogs.
	Pounds shorn.	Number.	Value.	Number.	Estimate of injury done.	
Adams	34,758	173	$475 50	56	$165 00	$640 50
Allen	86,654	316	1,206 00	249	670 00	1,876 00
Ashland	232,476	199	672 00	250	481 00	1,153 00
Ashtabula	110,538	207	1,255 00	335	556 00	1,811 00
Athens	310,738	281	716 00	168	286 00	1,002 00
Auglaize	50,721	245	1,135 00	137	258 00	1,393 00
Belmont	708,292	821	2,661 00	888	1,351 00	4,012 00
Brown	56,550	280	779 50	72	230 00	1,009 50
Butler	44,002	100	542 15	38	53 00	595 15
Carroll	559,780	206	740 00	381	392 00	1,132 00
Champaign	143,851	325	1,247 00	222	521 00	1,768 00
Clarke	203,700	429	1,379 00	360	372 00	1,751 00
Clermont	38,495	246	937 00	57	132 00	1,069 00
Clinton	110,870	429	1,566 00	455	1,087 00	2,653 00
Columbiana	624,346	558	1,827 00	446	702 00	2,529 00
Coshocton	566,009	423	1,540 50	296	748 50	2,289 00
Crawford	221,735	264	809 50	185	388 00	1,197 50
Cuyahoga	85,623	258	1,099 00	152	342 00	1,441 00
Darke	31,438	285	887 00	120	265 50	1,152 50
Defiance	44,767	169	545 00	71	140 00	685 00
Delaware	459,787	459	1,424 00	612	661 00	2,085 00
Erie	112,017	130	477 00	139	254 50	731 50
Fairfield	118,788	392	1,470 00	343	1,023 00	2,493 00
Fayette	73,131	329	1,146 00	206	432 00	1,578 00
Franklin	107,685	743	1,927 00	434	618 00	2,545 00
Fulton	118,003	269	590 00	117	242 00	832 00
Gallia	43,969½	390	980 00	190	232 00	1,212 00
Geauga	84,745	136	617 00	76	170 00	787 00
Greene	90,336	671	2,522 00	200	559 00	3,081 00
Guernsey	755,330	295	935 00	324	542 00	1,477 00
Hamilton	13,740	116	538 00	267	644 00	1,182 00
Hancock	137,336	586	1,756 50	472	934 00	2,690 50
Hardin	157,675	502	1,664 00	350	478 00	2,142 00
Harrison	933,205	383	1,204 00	254	452 50	1,656 50
Henry	32,040	98	279 00	67	138 00	417 00
Highland	80,756	297	989 00	94	283 00	1,272 00
Hocking	144,443	208	586 00	97	197 00	783 00
Holmes	167,702	234	883 00	278	406 00	1,289 00
Huron	254,430	362	1,115 00	205	471 00	1,586 00
Jackson	34,011	227	595 00	81	151 00	746 00
Jefferson	610,167½	445	1,383 00	289	722 00	2,105 00
Knox	690,171	491	1,721 00	579	1,433 00	3,154 00
Lake	73,524	254	878 00	94	218 00	1,096 00
Lawrence	9,641	75	152 00	20	25 00	177 00
Licking	1,146,876	693	2,276 00	1,247	1,947 00	4,223 00
Logan	250,968	562	2,019 00	682	1,173 00	3,192 00
Lorain	211,190	225	838 00	118	190 00	1,028 00
Lucas	24,036	221	660 50	134	222 50	883 00
Madison	249,343	520	2,026 00	326	581 00	2,607 00
Mahoning	346,961	299	1,364 00	335	500 00	1,864 00
Marion	310,272	344	888 00	380	534 00	1,422 00
Medina	282,781	190	699 00	393	495 00	1,194 00
Meigs	122,584	225	651 00	86	182 00	833 00
Mercer	48,069	247	767 00	157	194 00	961 00
Miami	84,916	436	1,473 00	198	397 00	1,870 00
Monroe	121,049½	292	809 50	159	295 00	1,104 50
Montgomery	15,684	110	409 00	64	156 00	565 00
Morgan	379,307	181	476 50	435	607 00	1,083 50
Morrow	511,377	313	1,045 00	489	600 00	1,645 00
Muskingum	740,128	453	1,899 00	524	862 00	2,761 00
Noble	300,214	359	1,317 50	237	564 00	1,881 50
Ottawa	47,091	286	529 00	123	306 00	835 00
Paulding	11,751	178	437 00	182	277 00	714 00
Perry	330,368	507	1,490 00	264	182 00	1,672 00
Pickaway	56,098	392	1,255 00	545	711 00	1,966 00
Pike	24,793½	264	565 00	141	244 00	809 00
Portage	208,555	130	519 00	182	157 00	676 00
Preble	48,634	207	979 00	104	289 00	1,268 00
Putnam	42,080	244	764 00	98	178 00	942 00
Richland	269,856	390	1,302 00	403	813 00	2,115 00
Ross	42,429	297	1,447 00	844	630 00	2,077 00

WOOL PRODUCED, SHEEP KILLED AND INJURED, ETC., IN OHIO IN 1879—Continued.

Counties.	Wool.	Sheep killed.		Sheep injured.		Aggregate amount of injury to sheep by dogs.
	Pounds shorn.	Number.	Value.	Number.	Estimate of injury done.	
Sandusky	94,447	318	1,000 00	118	311 00	$1,311 00
Scioto	11,941	213	433 00	72	182 00	615 00
Seneca	241,056	428	1,234 00	269	759 00	1,993 00
Shelby	47,134	336	1,052 00	231	407 00	1,459 00
Stark	242,640	531	2,995 00	348	902 00	3,897 00
Summit	106.372	248	1,039 00	213	405 00	1,444 00
Trumbull	255,798	361	1,734 00	370	755 00	2,489 00
Tuscarawas	450,748	479	1,851 50	215	436 50	2,288 00
Union	316,360	273	921 00	171	367 00	1,288 00
Van Wert	32,763	182	476 00	134	168 00	644 00
Vinton	92,009	91	250 50	26	51 00	301 50
Warren	76,620	367	1,305 00	130	256 00	1,561 00
Washington	251,902	360	1,059 50	149	331 25	1,390 75
Wayne	167,129	515	1,709 50	494	980 50	2,690 00
Williams	93,365	179	458 00	99	161 00	619 00
Wood	68,262	514	1,450 50	211	387 50	1,838 00
Wyandot	277,494	494	1,553 00	799	1,099 00	2,652 00
Totals	18,671,427	28,700	$97,277 15	23,629	$41,671 25	$138,948 40

Wool.—The wool product of 1879 at 40 cents per pound gives an income of $7,468,570, or $1.00 to every $7.75 for wheat. Our statistics give us no means of ascertaining the value of the sheep and lambs sold for meat or shipment, but it would probably be half as much more, making a total of more than *eleven million dollars* in all yearly, or more than the total value at the mine of *all the coal mined in Ohio in the year* 1880. The latter is 7,000,000 tons, worth at the mine perhaps a little over $1 per ton. Such is the magnitude of the wool and mutton interest of Ohio, whose worst enemy seems to be the dog.

Dogs.—The wool product of 1867 was 24,844,601 lbs., and in 1878 only 18,671,427, showing a decrease of 25 per cent. The decrease in *number* of sheep is over 40 per cent., viz., from 7,622,495 to 4,267,261. But nearly all other products have largely increased, as for example dairy products nearly 50 per cent., corn has nearly doubled, and wheat has far more than doubled. One main cause of this decrease seems to be ravages of dogs, which near cities and villages cause farmers to go out of the business. The assessed value of all sheep in Ohio in 1879 was $9,311,972, and the damage done by dogs that year was $138,948 or $1 out of every $67. Nor does this include the immense damage done to flocks near yeaning time by fright and worry. Plainly our laws must still further restrain the dogs and diminish their numbers, or this important industry will still further diminish.

ORCHARDS AND BEES IN OHIO IN 1879.

Counties.	Orchards.				Bees.	
	Acres.	Bushels apples.	Bushels peaches.	Bushels pears.	Number hives.	Pounds honey.
Adams	3,524¼	121,304	333	648	1,424	9,594
Allen	4,538	158,080	28	595	2,252	19,703
Ashland	4,599	20,278	241	465	1,463	13,043
Ashtabula	6,281	247,020	3,969	1,935	416	2,756
Athens	5,101	143,995	956	84	1,400	14,314
Auglaize	3,268	118,306	25	665	1,256	12,277
Belmont	6,892	123,465	158	3,286	5,082	29,466
Brown	4,335⅓	150,993	38	792	1,894	19,661
Butler	3,849	84,805	12	2,940	1,477	19,913
Carroll	4,953¾	140,267	16,151	781	1,767	7,298
Champaign	2,739	47,392	18	841	1,756	16,342
Clarke	2,999	45,993	64	1,975	1,996	23,420
Clermont	8,514	189,415	345	4,544	1,897	24,276
Clinton	2,916	69,213	20	1,221	1,399	15,024
Columbiana	8,291	284,909	20,309	3,409	2,600	13,115
Coshocton	5,675	49,003	622	376	3,922	16,883
Crawford	4,815	60,172	98	975	2,081	13,026
Cuyahoga	5,557	74,944	3,556	3,680	1,243	14,107
Darke	6,014	239,398	81	1,931	1,885	18,580
Defiance	3,582	170,638	544	1,026	1,835	24,289
Delaware	3,941	18,630	2	91	1,831	17,680
Erie	3,698½	86,220	1,711	954	365	5,618
Fairfield	4,892	55,086	222	609	3,288	13,422
Fayette	1,983	37,161	197	421	1,396	9,922
Franklin	4,647	46,223	134	1,165	2,015	17,050
Fulton	5,150¼	155,480	1,699½	435¾	1,153	14,516
Gallia	4,879¾	137,529½	167	297	1,423	6,722
Geauga	3,856	106,650	1,614	876	562	6,570
Greene	3,406	87,597	63	1,714	1,793	21,210
Guernsey	5,498	62,407	98	416	3,321	19,152
Hamilton	5,014	127,548	9,303	7,307	1,526	27,618
Hancock	5,890	146,349	162	1,146	2,870	31,967
Hardin	3,666	55,099	31	529	2,640	38,872
Harrison	4,283	99,902	4,418	968	2,588	13,996
Henry	3,305¾	77,407	410	354	1,245	22,439
Highland	5,412	134,356	125	663	1,957	13,432
Hocking	3,761	30,771	107	29	1,223	3,598
Holmes	4,405	50,047	383	757	1,961	10,672
Huron	7,226	53,206	471	924	1,331	16,011
Jackson	3,392	114,953	167	98	713	3,648
Jefferson	4,474¾	168,836	2,432	825	2,081	14,213
Knox	5,608	25,482	168	256	1,976	11,378
Lake	2,859	61,463	8,483	815	483	5,692
Lawrence	5,416	99,447	232	548	1,037	7,120
Licking	6,854	30,372	156	563	3,412	24,059
Logan	3,186	58,858	5	698	2,240	20,633
Lorain	6,052	115,341	2,953	1,236	1,026	11,233
Lucas	3,913	127,123	3,353	2,405	1,067	16,152
Madison	1,893	20,587	15	163	2,185	21,839
Mahoning	4,390	177,259	10,646	2,718	1,798	15,220
Marion	2,962½	34,110	6¼	147½	2,121	22,687
Medina	5,299	60,166	2,094	1,173	1,625	19,700
Meigs	6,057	195,484	145	871	1,356	7,834
Mercer	3,372	181,744	32	662	1,616	13,522
Miami	4,091	87,528	10	1,946	1,528	16,196
Monroe	5,942½	122,101	31	539	2,191	20,726

ORCHARDS AND BEES IN OHIO IN 1879—Continued.

Counties.	Orchards.				Bees.	
	Acres.	Bushels apples.	Bushels peaches.	Bushels pears.	Number hives.	Pounds honey.
Montgomery	4,497	114,500	10	5,245	1,395	15,398
Morgan	5,189	57,734	95	747	1,901	15,735
Morrow	5,413½	48,740½	20	640½	8,339	11,882
Muskingum	7,509	41,001	463	2,243	3,477	18,162
Noble	7,929	89,837	59	555	2,296	36,060
Ottawa	2,660	44,883	1,041	714	489	10,303
Paulding	1,640	53,971	165	119	1,563	16,064
Perry	3,727	24,893	28	866	1,491	7,059
Pickaway	2,884	46,636	907	516	2,707	16,650
Pike	3,182¾	136,343	135	85	700	3,080
Portage	6,176	135,262	11,124	1,817	1,429	12,385
Preble	3,347	95,406	57	2,561	1,634	15,641
Putnam	3,168	118,584	20	191	1,742	14,712
Richland	6,007	36,015	169	1,435	1,501	9,524
Ross	5,384¾	114,337	300	432	1,761	8,179
Sandusky	4,897	48,520	1,359	667	902	12,631
Scioto	2,982	86,561	158	264	1,086	6,036
Seneca	6,791	50,751	312	1,628	2,637	14,187
Shelby	3,105	146,280	322	782	1,585	12,926
Stark	6,754	111,311	9,238	4,959	2,444	16,113
Summit	5,098	76,386	4,985	2,458	1,206	12,146
Trumbull	5,605	136,618	6,222	1,153	1,363	9,988
Tuscarawas	7,079	151,248	3,120	1,011	3,668	22,878
Union	3,093	17,599	50	69	1,681	19,059
Van Wert	2,887	102,401	10	147	2,157	21,585
Vinton	2,614½	56,313	6	37	723	4,241
Warren	4,832	162,536	13	6,083	1,492	21,046
Washington	10,050	181,872	290	557	2,045	14,551
Wayne	6,471½	47,442	2,531½	3,042½	2,319	13,986
Williams	5,104	328,575	1,879	967	1,334	14,862
Wood	10,934	168,480	795	848	1,563	14,979
Wyandot	3,686	42,165	46	763	1,806	21,288
Totals	419,816	8,861,313	145,743¼	111,090¼	164,424	1,352,742

Orchards.—As it was the off year for fruit, the crop was small and the prices high. Few apples were wasted, or even used for cider. At 31 cents for apples and $1 for peaches and pears, which is, probably, not too high, the income from these kinds of fruit was $3,103,840, or $1 to $17, compared with wheat. The gross income per acre for orchards is about $7.50. In 1878 the income from this source, even at the low prices of that bountiful "fruit year," was about $6,000,000, or as $1 to $7 compared with the wheat crop *of that year*. When we consider that a large part of the orchards are young, and that the ground occupied even by bearing orchards commonly yields nearly a full crop of grass, grain, or vegetables, it will be seen that the orchards of Ohio are profitable.

Bees and Honey.—Without playing upon the words, it may be truly said that the bees are well distributed through the State. In nearly all the counties the range, as may be seen, is from 1,000 to 3,000 hives of bees, with a proportionate product of honey. The "honey crop," too, is one that does not interfere with the production of other crops; nor does it require a large amount of labor if one has skill, knack, and conveniences. And so the profits are more nearly net than of many other products. The total value of the "crop" is (at 20 cents) $270,548, and bears to the total value of the wheat crop the ratio of $1 to $190.

Grapes and Wine, and Tobacco Produced in Ohio in 1879.

Counties.	Grapes and wine.				Tobacco.	
	Acres planted in 1879.	Whole number of acres in vineyard.	Pounds grapes gathered.	Gallons wine pressed.	Acres.	Pounds produced.
Adams	5	4	400	20	788½	641,352
Allen	2	7¼	11,417	186	9⅛	4,382
Ashland	1	42	65,787	743	3	5,000
Ashtabula	19½	77½	165,330	345	8¾	8,012
Athens	2	9	11,370	97	155	167,806
Auglaize	½	.....	1,000	201	17¼	9,265
Belmont	7¾	206⅞	285,967	11,845	1,194	923,125
Brown	13½	161¾	58,779	7,934	4,847⅜	3,721,793
Butler	1	26½	29,800	2,400	381	420,864
Carroll	3½	5¼	10,150	123	½	325
Champaign	1	2,460	30	.....	2	970
Clarke	.....	¼	1,370	.....	42	76,058
Clermont	91½	324	163,043	3,592	3,114	3,163,242
Clinton	1	.....	2,040	.....	39	22,600
Columbiana	28	264	54,380	176	7	1,192
Coshocton	4	77	31,453	1,043	6¾	1,809
Crawford	9	215	36,142	887	2	80
Cuyahoga	176	1,185	1,875,093	19,834	.....	.....
Darke	10¼	15⅜	7,650	81	1,685	2,079,133
Defiance	.....	⅛	1,600	72	111	131,142
Delaware	4	5,015	.....	.....	5	745
Erie	32¾	1,315	3,639,246	344,336	1½	105
Fairfield	21	105	54,686	534	9	5,650
Fayette	8	33	6,811	.....	7	2,613
Franklin	9	22	25,400	575	6	592
Fulton	⅞	402⅞	15,700	237	1½	390
Gallia	.....	3¾	11,944	232	135	92,856
Geauga	2	9	40,400	130	½	150
Greene	2	141	310	.....	451	498,939
Guernsey	.....	21¾	33,880	107	402	354,411
Hamilton	30	1,060	206,350	3,683	.....	.....
Hancock	1⅜	6	20,796	304	.....	230
Hardin	.....	.....	53,618	116	3	1,050
Harrison	1	3½	6,210	77	16	13,300
Henry	⅛	⅛	1,410	5	7⅝	575
Highland	.....	.....	.....	.....	126	87,964
Hocking	14¾	67½	8,895	95	11	4,935
Holmes	1⅛	24⅔	21,356	829	1½	358
Huron	2	34	32,400	240	1	90
Jackson	2	1	100	.....	5⅛	2,330
Jefferson	6	14	11,460	2,090	2	200
Knox	69	37	38,190	117	3	795
Lake	36	94	74,840	100	9	7,800
Lawrence	.....	2	7,296	9	66	34,395
Licking	2	21¾	57,268	45	3¼	1,200
Logan	½	3¼	8,480	130	2½	670
Lorain	24	425	561,941	345	3	3,481
Lucas	8¾	155½	612,500	7,065	1⅞	938
Madison	1	3¼	5,900	140	⅓	250
Mahoning	3⅝	25¾	43,824	1,493	.....	30
Marion	1	5½	2,600	23	1¾	175

GRAPES AND WINE, AND TOBACCO PRODUCED IN OHIO IN 1879—Continued.

Counties.	Grapes and wine.				Tobacco.	
	Acres planted in 1879.	Whole number of acres in vineyard.	Pounds grapes gathered.	Gallons wine pressed.	Acres.	Pounds produced.
Medina	1½	7	17,650	126	16¾	14,475
Meigs	17	14	15,890	1,188	....	....
Mercer	....	14	4,695	217	11	2,660
Miami	4½	8	4,990	6	555	646,902
Monroe	10⅞	39⅝	31,463	4,496	1,771⅔	1,175,857
Montgomery	3	29	22,220	1,220	7,010	7,670,766
Morgan	3	22½	16,420	411	713	583,891
Morrow	129⅛	253¾	7,540	....	1½	550
Muskingum	2	93	72,814	1,557	....	....
Noble	1¼	45¾	17,029	463	1,716½	1,472,069
Ottawa	69½	1,799½	6,681,267	517,590	2¾	192
Paulding	4	1	2,010	6	15	5,000
Perry	10⅝	107½	61,793	325	19	14,110
Pickaway	....	5¾	....	2,160	7	3,124
Pike	4¾	420½	7,040	676	18⅜	5,898
Portage	7	13	24,770	273	12½	1,745
Preble	2	5½	11,650	70	1,376	1,563,701
Putnam	....	1	4,966	25	6	558
Richland	8¼	191¼	133,509	196	2⅛	100
Ross	16⅛	112¾	26,556	1,547	1	361
Sandusky	3	33	80,770	1,824	⅛	100
Scioto	1½	7	2,300	565	4¾	3,191
Seneca	....	19	30,990	1,093	5	2,390
Shelby	....	¼	220	....	60	56,055
Stark	11⅝	31	73,388	713	23	6,590
Summit	3	16	65,520	338	⅛	100
Trumbull	11	425	38,165	46	2⅓	595
Tuscarawas	¾	23	25,230	858	2	450
Union	¼	6	7,345	121	⅞	95
Van Wert	3¼	¼	6,332	12	7⅝	1,782
Vinton	....	12¼	602	25	68½	21,800
Warren	7	19	7,940	144	832	913,347
Washington	16	117	104,727	8,020	686	501,819
Wayne	13¾	28	96,218	1,653	66	58,235
Williams	½	5⅜	24,665	922	¾	90
Wood	15¾	32	102,835	....	4½	240
Wyandot	3¼	23	60,020	180	1	1,800
Totals	1,045½	18,114¼	16,308,151	961,702	28,715	27,226,005

Grapes and Wine.—Grapes thrive in all parts of the State, so that each man may "sit under his own vine" and pear-tree. But in large quantities grapes are chiefly produced in comparatively few counties. At a fair price (four cents for grapes and $1.50 for wine) the total crop is worth $20,094.79, or is in total value in Ohio as $1 to $25 compared with wheat. The gross value of the crop per acre for 1879 was $111 per acre. Much labor is required, but there is money in it for those who have suitable soil and location, and the required knowledge and skill. The above estimates are based on the supposition that the same grapes are not entered twice above, once as "grapes" and again as "wine."

Tobacco.—This crop is a more important one in Ohio than is usually supposed. It is very unevenly distributed, as can be seen, a few of the southerly and easterly counties producing almost the entire crop of the State. The gross value of the crop for 1879 was nearly $95 per acre. The crop, however, involves a large outlay of labor and expense, considerable skill or special training, and special adaptations of soil and climate. The total value of the crop for 1879 was $2,178,080, and its value is as one to twenty-four compared wfth that of the wheat crop.

DOMESTIC ANIMALS DIED FROM DISEASES.

Counties.	Hogs.		Sheep.		Cattle.		Horses.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Adams	759	$2,340 00	221	$604 00	103	$2,015 00	74	$3,547 00
Allen	1,182	4,510 00	525	1,296 00	322	4,708 00	129	6,912 00
Ashland	220	880 00	544	1,558 00	229	4,868 00	110	8,015 00
Ashtabula	202	1,204 00	536	2,144 00	359	6,934 00	107	7,192 00
Athens	124	500 00	580	1,675 00	108	1,635 00	48	2,425 00
Auglaize	4,325	12,293 00	300	824 00	235	4,187 00	156	8,593 00
Belmont	353	1,389 00	1,685	4,714 00	214	4,340 00	128	7,766 00
Brown	1,672	6,063 00	533	6,212 00	235	5,019 00	160	9,343 00
Butler	19,438	84,873 00	501	2,126 00	308	7,644 00	250	7,246 00
Carroll	56	342 00	958	2,364 00	114	2,082 00	32	2,490 00
Champaign	1,519	5,861 00	523	1,875 00	127	3,339 00	120	9,930 00
Clarke	4,457	17,034 00	574	1,891 00	199	4,938 00	130	10,055 00
Clermont	1,049	4,600 00	294	1,041 00	171	3,640 00	120	7,085 00
Clinton	2,326	7,666 00	494	1,684 00	129	3,728 00	141	10,015 00
Columbiana	130	741 00	1,066	3,259 00	220	4,795 00	101	8,079 00
Coshocton	576	1,655 00	846	2,508 00	94	2,184 00	59	3,720 00
Crawford	1,746	5,994 00	731	1,989 00	217	3,829 00	112	7,140 00
Cuyahoga	399	1,821 00	386	1,306 00	226	6,090 00	165	8,480 00
Darke	4,634	14,200 00	227	752 00	388	6,045 00	213	14,064 00
Defiance	1,901	4,865 00	224	493 00	255	3,441 00	129	6,413 00
Delaware	451	2,004 00	1,467	3,752 00	191	4,603 00	132	11,238 00
Erie	227	975 00	125	243 00	83	2,084 00	55	3,980 00
Fairfield	2,292	6,832 00	697	2,263 00	247	4,865 00	138	8,018 00
Fayette	4,760	16,536 00	419	1,256 00	114	3,272 00	120	6,530 00
Franklin	4,110	15,489 00	664	1,971 00	238	5,666 00	185	11,659 00
Fulton	1,593	5,371 00	326	836 00	97	1,967 00	120	8,630 00
Gallia	413	1,654 00	268	696 00	247	3,974 00	142	6,902 00
Geauga	61	365 00	357	1,332 00	191	4,556 00	52	3,158 00
Greene	2,905	10,248 00	468	1,688 00	219	5,810 00	137	9,850 00
Guernsey	102	459 00	1,165	2,996 00	147	2,452 00	57	3,235 00
Hamilton	4,100	11,199 00	206	711 00	607	5,058 00	170	7,891 00

Domestic Animals Died from Diseases—Continued.

Counties.	Hogs.		Sheep.		Cattle		Horses.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Hancock	1,922	$6,486 00	622	$1,741 00	289	$6,239 00	192	$12,045 00
Hardin	2,306	6,434 00	849	2,023 00	190	3,456 00	103	5,215 00
Harrison	51	267 00	1,548	3,848 00	106	2,405 00	57	3,705 00
Henry	2,380	6,121 00	194	561 00	186	2,940 00	83	4,543 00
Highland	3,505	11,359 00	548	1,817 00	252	5,857 00	150	8,170 00
Hocking	402	1,162 00	648	1,520 00	153	2,587 00	81	4,275 00
Holmes	210	747 00	387	997 00	136	2,317 00	76	4,200 00
Huron	352	1,508 00	734	2,054 00	221	5,034 00	130	7,582 00
Jackson	334	1,244 00	276	561 00	151	2,592 00	84	3,697 00
Jefferson	227	1,189 00	2,148	4,393 00	152	2,986 00	75	4,965 00
Knox	725	3,019 00	1,630	4,311 00	202	4,925 00	125	8,137 00
Lake	41	239 00	102	372 00	50	1,063 00	25	1,995 00
Lawrence	415	1,215 00	283	596 00	203	3,404 00	100	5,908 00
Licking	994	4,004 00	3,020	8,420 00	209	5,429 00	193	11,593 00
Logan	3,860	14,376 00	1,124	3,595 00	176	4,538 00	156	10,250 00
Lorain	230	1,143 00	634	6,466 00	290	6,144 00	105	6,512 00
Lucas	1,882	6,198 00	221	545 00	179	4,264 00	105	6,454 00
Madison	3,326	11.934 00	763	3,208 00	186	5,433 00	181	13,319 00
Mahoning	122	565 00	699	2,114 00	133	3,128 00	60	3,676 00
Marion	2,099	6,786 00	1,360	3,638 00	194	5,072 00	183	13,341 00
Medina	148	895 00	748	2,588 00	201	4,620 00	96	6,627 00
Meigs	124	503 00	419	1,223 00	100	1,830 00	73	3,496 00
Mercer	6,452	17,549 00	319	882 00	369	5,494 00	194	10,905 00
Miami	2,311	9,847 00	310	1,194 00	223	4,687 00	159	13,229 00
Monroe	364	1,417 50	616	1,459 50	257	3,735 00	92	4,477 00
Montgomery	3,828	17,017 00	181	544 00	316	6,107 00	212	13,993 00
Morgan	101	407 00	554	1,453 00	134	2,141 00	65	3,110 00
Morrow	191	1,207 00	1,561	3,734 00	351	2,630 00	115	7,023 00
Muskingum	710	2,381 00	1,500	3,915 00	196	3,962 00	103	6,737 00
Noble	160	760 00	755	2,094 00	160	2.990 00	65	3,087 00
Ottawa	509	1,805 00	206	435 00	194	,700 00	121	7,264 00

Paulding	1,476	3,259 00	232	464 00	281	4,127 00	198	9,048 00
Perry	322	1,209 00	1,318	3,308 00	179	3,281 00	71	4,203 00
Pickaway	6,235	20,117 00	518	1,431 00	217	5,660 00	228	14,500 00
Pike	613	1,366 00	189	715 00	84	1,838 00	104	5,047 00
Portage	151	925 00	809	2,953 00	253	6.428 00	87	6,867 00
Preble	3,765	12,172 00	463	1,479 00	226	4,785 00	139	9,600 00
Putnam	4,002	13,607 00	481	1,239 00	287	4,441 00	165	9,891 00
Richland	387	1,475 00	1,003	2,781 00	201	4,348 00	125	9,491 00
Ross	2,890	9,939 00	228	697 50	208	5,033 00	162	9,854 00
Sandusky	776	3,867 00	188	525 00	110	2,139 00	72	3,967 00
Scioto	483	1,963 00	163	355 00	224	3,763 00	120	5,777 00
Seneca	1,774	5,548 00	557	1,443 00	274	4,854 00	275	15,831 00
Shelby	2,832	9,627 00	286	804 00	224	4,117 00	156	9,428 00
Stark	412	1,753 00	914	3,239 00	308	4,838 00	171	12,181 00
Summit	179	916 00	405	1,482 00	281	6,466 00	124	7,936 00
Trumbull	237	1,597 00	1,174	4,162 00	485	10,185 00	100	7,512 00
Tuscarawas	287	995 00	1,389	3,580 00	297	4,874 00	133	9,494 00
Union	1,161	4,480 00	1,362	4,255 00	159	4,649 00	151	11,395 00
Van Wert	3,706	9,285 00	298	621 00	256	3,959 00	185	9,653 00
Vinton	209	660 00	483	1,247 00	87	1,750 00	52	2,018 00
Warren	7,751	31,958 00	706	2,116 00	238	5,978 00	171	11,680 00
Washington	259	1,321 00	1,278	3,509 00	222	3,840 00	125	5,712 00
Wayne	411	1,729 00	548	1,802 50	257	5,411 00	175	13,392 00
Williams	487	2,335 00	305	979 00	187	3,981 00	102	2,906 00
Wood	2,219	8,122 00	414	1,524 00	257	5,047 00	191	11,820 00
Wyandot	1,203	4,060 00	858	2,541 00	221	4,115 00	141	8,964 00
Totals	152,590	$544,032 50	59,440	$179,613 50	18,816	$360,384 00	10,074	$677,198 00

Diseases.—Only among hogs does any disease seem specially prevalent, seventy out of every one thousand hogs having died, chiefly from the so-called hog cholera, and chiefly, too, in the great hog-feeding counties. The ratio of mortality among other animals is small, namely, fourteen to the one thousand for sheep, or about the same number killed and maimed by dogs, eleven to the one thousand for cattle, and fourteen for horses. The total value of animals dying from diseases is $1,761,227, or about one-thirteenth of the value of the wheat crop for that year. The total, too, is $675,000 less than the loss reported *for hogs alone* in Illinois in 1879 at Ohio prices. Still the loss is sufficient to show the need of more thorough veterinary knowledge, at least in regard to contagious, infectious, and epizootic diseases. But it is plain that Ohio is a healthy State for man and beast. Reports for 1880 show almost a total absence of hog cholera in all parts of the State.

COMPARATIVE VALUE OF AGRICULTURAL PRODUCTS FOR 1879.

Product.	Prices for 1879.	Rates compared with wheat as 1 to—	Total value of crop.	Gross value of crop per acre.
Wheat	$1 25	As 1 to —	$51,315,150	$23 00
Corn	44	As 1 to 1¼	42,639,872	15 00
Hay (per ton)	10 00	As 1 to 2¾	19,221,140	....
Butter (per pound)	20	As 1 to 5	10,056,459	....
Hogs (per pound, estimated	5	....	10,000,000	....
Woodland (estimated)	....	....	10,000,000	....
Oats	30	As 1 to 7	7,574,770	9 00
Wool	40	As 1 to 7¾	7,468,570	....
Mutton and beef (estimated)	....	....	7,000,000	....
Potatoes	40	As 1 to 13	3,898,664	31 00
Orchards—				
Apples	31	....	....	....
Pears	1 00	As 1 to 17	3,103,840	7 50
Peaches	1 00	....	....	....
Tobacco	8	As 1 to 24	2,178,080	73 00
Cheese	8	As 1 to 25	2,053,421	....
Grapes	4	....	....	....
Wine (per gallon)	1 50	As 1 to 25	2,009,479	111 00
Clover Seed	5 00	As 1 to 32	1,613,515	....
Barley	66	As 1 to 54	951,920	18 75
Sorghum—				
Syrup (per gallon)	50	As 1 to 100	506,000	38 00
Sugar	8	....	....	....
Maple—				
Syrup (per gallon)	80	As 1 to 100	510,879	....
Sugar	10	....	....	....
Honey	20	As 1 to 190	270,548	....
Rye	70	As 1 to 228	223,226	8 50
Buckwheat	70	As 1 to 330	151,988	8 50
Sweet potatoes	1 00	As 1 to 350	146,476	70 00
Total value of crops	....	....	$182,893,997	

The value of the flax crop is omitted, as we have no reliable figures.

STATISTICS

OF —

Different Crops and Productions

FOR THE YEAR 1880.

STATISTICS OF DIFFERENT CROPS AND PRODUCTIONS FOR THE YEAR 1880.

Counties.	Wheat.				
	No. acres.	No. bushels.	Average per acre.	No. acres sown for harvest of 1881.	Cost of commercial fertilizers bought for crop of 1881.
Adams	21,010	172,426	8.2	19,519	$17,500
Allen	35,518	616,351	17.3	40,060	....
Ashland	38,773	858,320	22.1	36,441	4,334
Ashtabula	15,761	299,513	19.	19,652	32,547
Athens	19,862	234,558	11.8	19,054	13,032
Auglaize	37,350	631,455	16.9	36.590	60
Belmont	30,155	492,580	16.	28,998	4,837
Brown	27,678	233,823	8.4	26,162	4,738
Butler	38,667	587,764	15.2	42,799	507
Carroll	19,066	311,935	16.4	18,088	5,835
Champaign	49,701	891,016	17.9	46,776	512
Clarke	43,994	830,659	19.1	44,095	63
Clermont	23,043	201,972	8.7	21.049	1,839
Clinton	36,354	493,429	13.1	39,567	668
Columbiana	24,888	479,228	19.3	24.340	7,103
Coshocton	41,983	704,898	16.7	40,628	149
Crawford	36,811	787,788	21.4	39.656	150
Cuyahoga	11,354	231,206	20.3	10,695	19 196
Darke	60,812	1,070,272	15.9	66.283	62
Defiance	27,971	459,558	13.5	29,618	....
Delaware	29.252	473,735	16.2	29,612	355
Erie	27,975	649,679	23.3	32,263	1,906
Fairfield	53,560	940,958	17.6	54,858	351
Fayette	39,647	584,493	14.7	37,919	190
Franklin	47,312	824,274	17.4	43,734	15
Fulton	30,973	545,093	17.6	30,582	159
Gallia	33.064	298,896	9.	32,043	12,736
Geauga	6,765	118,913	17.8	7,710	13,921
Greene	54,131	947,843	17.5	51,211	343
Guernsey	22,833	300,107	13.1	19.867	6,140
Hamilton	12,989	165,203	12.7	7,361	160
Hancock	55,960	1,063,019	19.	59,912	197
Hardin	37,233	607,738	16.3	43,645	155
Harrison	18,710	314,601	16.7	20,294	926
Henry	27,066	476,992	17.6	29,401	242
Highland	41,709	451,115	10.8	37,308	7,409
Hocking	15,847	163,907	10.6	13,920	2,484
Holmes	35,200	782 746	21.1	34,540	1.889
Huron	41,597	878,974	21.1	36,998	1,892
Jackson	11,838	105,247	8.9	11,383	6.160
Jefferson	21,093	396,683	18.9	19,061	2,357
Knox	40,780	684,366	16.7	38,696	89
Lake	8,383	164,920	19.9	8,465	6,712
Lawrence	20,097	194,386	9.7	18.735	688
Licking	48,572	794,326	16.4	46,298	397
Logan	43,769	731,494	16.7	43,517	170
Lorain	23,866	492,082	21.0	24,692	6,605
Lucas	17,566	346,002	19.8	17,529	140

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Wheat.				
	No. acres.	No. bushels.	Average per acre.	No. acres sown for harvest of 1881.	Cost of commercial fertilizers bought for crop of 1881.
Madison	26,333	417,940	15.9	31,979	$298
Mahoning	14,476	303,832	20.9	12,913	14,401
Marion	32,309	594,408	18.4	36,693	34
Medina	20,619	432,987	21.	20,948	22,938
Meigs	21,264	222,004	10.4	23,591	8,163
Mercer	33,080	533,114	16.2	35,236	....
Miami	46,250	940,952	20.3	46,775	205
Monroe	20,870	257,331	12.3	19,028	2,061
Montgomery	46,432	845,040	18.2	45,097	2,310
Morgan	22,315	316,340	14.2	22,653	14,943
Morrow	22,176	401,182	18.1	20,257	80
Muskingum	40,714	707,461	17.4	38,562	6,506
Noble	22,497	296,015	13.2	20,707	4,010
Ottawa	17,864	334,253	18.7	16,878	15
Paulding	12,872	171,109	13.3	15,126	....
Perry	19,590	310,593	15.9	24,066	10,837
Pickaway	61,908	991,525	16.0	61,015	86
Pike	13,961	139,186	10.	13,665	1,440
Portage	20,823	460,894	22.1	22,011	23,781
Preble	39,005	625,569	16.	39,950	1,520
Putnam	32,442	576,121	17.7	35,637	11
Richland	42,240	874,434	20.7	40,210	4,465
Ross	50,038	759,458	15.2	47,994	498
Sandusky	51,180	1,065,025	20.8	60,672	104
Scioto	14,273	122,340	8.6	9,876	1,178
Seneca	71,178	1,574,522	22.1	75,995	73
Shelby	39,031	662,803	16.9	40,648	438
Stark	54,581	1,349,094	24.7	53,979	26,101
Summit	31,316	751,292	23.9	31,258	8,833
Trumbull	12,507	240,191	15.5	13,091	15,966
Tuscarawas	43,837	853,420	19.5	40,884	1,093
Union	31,102	470,597	15.1	34,740	73
Van Wert	25,703	404,991	15.1	28,764	54
Vinton	11,050	102,243	9.2	11,121	1,806
Warren	32,160	439,619	13.1	30,325	1,060
Washington	38,847	516,663	13.3	36,987	36,119
Wayne	57,505	1,259,834	21.9	55,248	16,687
Williams	44,935	699,003	15.5	44,015	140
Wood	38,327	797,533	20.8	44,912	159
Wyandot	41,552	872,646	21.0	44,554	70
Totals	2,827,720	48,540,307	....	2,856,609	$416,476

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Rye.		Buckwheat.		Barley.	
	No. Acres.	No. Bushels.	No. Acres.	No. Bushels.	No. Acres.	No. Bushels.
Adams	96	419	118	797	49	961
Allen	156	1,805	118	1,656	237	2,952
Ashland	146	2,032	103	1,407	184	4,548
Ashtabula	204	2,384	491	7,752	278	6,849
Athens	179	1,329	170	1,918	11	250
Auglaize	119	1,521	99	1,098	695	17,202
Belmont	195	2,074	168	1,654	234	4,582
Brown	783	4,361	203	1,439	78	968
Butler	46	255	120	1,389	23,693	489,055
Carroll	337	3,050	130	1,344	24	422
Champaign	27	446	59	822	102	2,483
Clarke	243	3,037	28	892	276	6,935
Clermont	483	3,100	185	1,861	122	3,657
Clinton	134	974	53	428	239	6,989
Columbiana	872	9,171	177	1,902	116	2,123
Coshocton	121	1,301	309	3,638	7	168
Crawford	134	1,870	42	737	141	3,195
Cuyahoga	493	7,120	40	869	144	3,630
Darke	310	3,617	128	1,582	1,653	35,485
Defiance	73	1,501	220	2,849	176	4,024
Delaware	195	935	159	1,838	47	1,543
Erie	97	1,542	359	5,163	1,470	34,494
Fairfield	114	1,289	40	513	1,386	38,756
Fayette	62	549	23	231	17	640
Franklin	212	1,899	83	951	78	2,112
Fulton	148	2,158	401	5,930	80	2,340
Gallia	87	651	200	1,805	…………	……………
Geauga	27	404	64	580	41	709
Greene	89	795	27	272	919	26,486
Guernsey	240	2,185	296	3,030	16	322
Hamilton	1,054	12,702	104	1,081	5,464	106,957
Hancock	95	1,378	93	1,152	94	3,250
Hardin	30	510	124	1,821	36	840
Harrison	74	764	72	773	2	30
Henry	472	8,522	174	2,699	54	1,154
Highland	274	1,745	72	622	17	191
Hocking	215	1,505	187	1,807	24	533
Holmes	205	2,772	175	2,155	99	1,432
Huron	15	219	150	2,655	429	8,939
Jackson	136	608	147	1,310	10	327
Jefferson	192	2,128	72	790	208	3,898
Knox	295	2,648	203	2,844	7	230
Lake	301	4,521	278	4,218	1,514	32,388
Lawrence	55	334	89	581	106	2,098
Licking	440	3,955	285	3,648	36	1,156
Logan	36	445	85	1,189	13	441
Lorain	105	1,559	32	375	1,384	29,850
Lucas	340	6,598	307	3,693	461	10,449
Madison	102	1,005	13	225	…………	……………
Mahoning	292	2,781	103	899	41	687
Marion	70	807	32	438	30	352
Medina	73	1,018	19	191	59	1,152
Meigs	254	1,894	323	3,217	165	3,492
Mercer	137	1,758	120	1,459	267	5,453
Miami	151	2,013	84	1,231	2,514	70,582

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Rye.		Buckwheat.		Barley.	
	No. Acres.	No. Bushels.	No. Acres.	No. Bushels.	No. Acres.	No. Bushels.
Monroe	670	5,308	314	2,538	23	294
Montgomery	250	3,086	19	167	5,597	161,120
Morgan	201	866	116	1,358	8	113
Morrow	281	2,637	127	1,577	49	809
Muskingum	290	3,022	145	1,531	92	1,985
Noble	149	1,356	124	1,310	101	1,176
Ottawa	223	4,672	87	1,460	261	5,678
Paulding	61	627	251	3,459	42	252
Perry	238	2,695	100	945	315	10,856
Pickaway	47	651	17	186	664	20,170
Pike	106	540	82	612	578	14,522
Portage	96	1,305	40	407	39	565
Preble	105	988	41	476	2,166	55,804
Putnam	138	2,372	229	3,616	31	689
Richland	433	4,804	143	1,905	290	9,011
Ross	145	549	88	735	160	4,014
Sandusky	103	1,913	83	1,568	271	4,860
Scioto	56	328	165	97	343	17,561
Seneca	73	1,010	39	539	149	2,396
Shelby	134	1,734	182	2,706	1,343	30,975
Stark	221	2,834	62	778	1,043	22,064
Summit	92	1,351	38	530	89	1,893
Trumbull	227	2,382	193	2,238	13	240
Tuscarawas	275	3,061	259	2,721	138	1,643
Union	68	587	83	1,008	36	866
Van Wert	113	1,834	204	2,952	90	1,683
Vinton	116	788	168	1,475	....	....
Warren	145	728	114	915	10,515	251,156
Washington	458	3,960	531	5,013	5	98
Wayne	168	2,492	61	731	284	4,948
Williams	39	676	80	839	37	772
Wood	563	10,673	349	5,605	902	22,599
Wyandot	30	531	32	520	50	780
Totals	18,209	200,323	12,492	169,787	71,268	1,642,308

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Oats.		Corn.	
	Acres.	No. Bushels.	Acres.	No. Bushels.
Adams	5,686	45,183	29,576	809,688
Allen	7,401	205,942	34,399	1,367,753
Ashland	15,596	500,182	22,760	922,447
Ashtabula	25,151	591,948	14,274	474,695
Athens	1,667	22,247	17,301	578,856
Auglaize	9,933	238,476	33,731	1,140,950
Belmont	9,929	270,934	26,686	1,161,818
Brown	9,312	118,739	42,259	1,064,357
Butler	8,081	144,387	59,031	2,358,833
Carroll	13,664	339,621	14,142	546,010
Champaign	5,061	133,905	49,820	2,143,090
Clarke	4,370	101,434	44,812	1,962,359
Clermont	11,852	177,484	40,571	4,091,694
Clinton	3,672	67,096	54,865	2,234,255
Columbiana	17,559	556,382	19,670	696,569
Coshocton	7,931	174,809	31,059	1,262,397
Crawford	16.349	530,011	29,361	1,167,395
Cuyahoga	13,617	455,964	10,375	404,656
Darke	16,112	466,289	65,872	2,730,661
Defiance	9,836	274,828	19,469	693,682
Delaware	6,572	111,898	37,164	1,650,974
Erie	8,528	278,138	16,440	605,213
Fairfield	3,057	52,359	51,076	2,377,147
Fayette	1,208	25,123	63,062	2,684,508
Franklin	3,803	60,625	63,233	2,743,219
Fulton	12.094	363,930	21,863	781,676
Gallia	3,150	34,254	23,104	616,866
Geauga	9,097	282,909	6,813	243.789
Greene	4,070	80,656	54,981	2,283,998
Guernsey	6,318	130,097	21,566	847,219
Hamilton	5,700	92,769	26,328	975,276
Hancock	7,783	240,356	44,986	1,857,830
Hardin	5,615	163,456	34.298	1,388,383
Harrison	5,272	144.815	14,956	653,671
Henry	6,554	188,129	25,655	1,077,607
Highland	6,278	81,459	52,149	1,767,671
Hocking	2,415	21,920	14,015	439,454
Holmes	15,311	448,054	22,140	813,488
Huron	20,420	637,450	28,292	1,048,749
Jackson	4,341	43,545	14,842	417,730
Jefferson	9,842	260,204	15,327	612,443
Knox	10,698	232,642	36,100	1,416,409
Lake	5,738	177,951	6,603	232,236
Lawrence	4,078	43,616	19,759	490,284
Licking	7,650	154,991	47,587	2,029,527
Logan	3,688	91,374	37,137	1,457,088
Lorain	14,010	517,989	17,594	707,923
Lucas	6,565	189,260	16,038	623,225
Madison	2,068	34,710	68,277	2,609,045
Mahoning	14,276	419,154	13,568	467,844
Marion	9,731	272,568	42,229	1,789,925
Medina	14,655	500,445	16,332	559,475
Meigs	3,037	43,347	17,970	514,137
Mercer	14,182	349,423	32,392	1,090,959
Miami	10,387	302,759	47,123	2,351,701
Monroe	8,351	139,274	18,373	626,228

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Oats.		Corn.	
	Acres.	No. Bushels.	Acres.	No. Bushels.
Montgomery	13,884	334,231	48,918	1,792,490
Morgan	2,343	40,510	17,571	619,058
Morrow	14,206	410,426	25,195	1,204,943
Muskingum	5,440	103,675	33,555	1,371,360
Noble	4,006	79,139	20,421	757,486
Ottawa	3,591	97,289	14,095	533,234
Paulding	2,997	56,745	10,827	322,010
Perry	2,274	35,938	17,582	685,778
Pickaway	562	9,990	78,127	3,373,630
Pike	5,143	46,106	23,909	803,928
Portage	14,014	429,735	13,130	450,822
Preble	13,156	297,169	45,413	1,782,293
Putnam	3,090	77,757	32,294	1,539,434
Richland	21,728	650,477	27,125	1,030,782
Ross	2,266	26,363	70,129	2,696,685
Sandusky	9,291	285,812	29,866	1,210,129
Scioto	7,843	54,183	21,664	711,284
Seneca	14,626	466,911	35,204	1,408,045
Shelby	12,397	348,354	35,718	1,250,500
Stark	22,837	827,638	25,205	1,054,292
Summit	14,281	472,431	15,304	625,599
Trumbull	15,166	480,443	14,054	451,233
Tuscarawas	7,335	412,872	23,505	907,594
Union	4,314	92,613	43,685	1,664,943
Van Wert	6,738	169,557	26,396	1,095,248
Vinton	1,835	20,249	11,945	345,298
Warren	9,046	175,717	48,216	1,926,570
Washington	6,980	111,813	23,915	726,520
Wayne	22,153	734,459	29,875	1,200.098
Williams	18,129	502,661	29,404	978.160
Wood	22,359	411,976	55,900	1,974,517
Wyandot	9,067	200,857	37,186	1,355,284
Totals	812,368	21,091,606	2,709,738	105,414,594

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Meadow.		Clover.			
	No. acres of grass other than clover.	No. tons of hay.	No. acres.	No. tons of hay.	No. bushels of seed.	No. acres plowed under for manure.
Adams	13,936	10,413	5,531	1,915	4,175	495
Allen	12,277	13,515	6,015	5,162	4,383	547
Ashland	22,835	25,560	7,815	6,078	7,457	454
Ashtabula	47,997	57,218	2,078	2,803	2,247	241
Athens	17,474	16,291	1,022	422	51	....
Auglaize	8,755	8,988	3,395	2,909	3,105	789
Belmont	27,625	23,160	1,682	1,366	98	96
Brown	17,374	15,190	4,244	1,080	95	468
Butler	9,514	10,212	14,283	3,998	538	4,102
Carroll	24,702	20,030	1 442	1,255	1,335	6
Champaign	10,020	12,467	4,142	2,356	2,015	555
Clarke	12,954	14,934	5,711	3,756	3,191	1,418
Clermont	21,268	18,455	7,308	1,409	63	1,397
Clinton	11,488	13,714	2,561	1,313	782	243
Columbiana	37,474	35,745	3,464	3,448	2,363	271
Coshocton	22,506	21,770	2,564	2,051	1,493	54
Crawford	18,501	19,843	5,508	5,463	5,059	139
Cuyahoga	29,000	40,129	762	1,120	76	128
Darke	9,752	10,227	12,207	4,184	2,399	2,480
Defiance	10,463	13,189	5,863	5,971	6,440	897
Delaware	25,263	25,325	2,602	2,432	1,732	142
Erie	8,365	9,459	5,005	4,543	4,078	1,212
Fairfield	17,011	14,944	10,395	5,859	7,865	944
Fayette	9,098	8,489	1,225	487	180	281
Franklin	21,170	19,887	3,897	2,115	878	1,362
Fulton	14,140	16,950	5,219	5,747	3,252	448
Gallia	11,812	11,095	1,715	743	226	228
Geauga	32,227	39,011	613	965	187	178
Greene	11,245	13,019	10,412	264	1,215	2,654
Guernsey	29,201	23,812	671	602	263	16
Hamilton	14,303	16,302	4,280	4,110	83	843
Hancock	14,358	15,662	7,580	8,783	8,775	378
Hardin	12,905	13,180	2,213	2,129	2,246	160
Harrison	26,794	22,775	739	732	229	4
Henry	6,777	7,834	3,108	3,684	3,538	325
Highland	20,874	19,928	2,907	1,861	1,702	281
Hocking	11,861	9,579	1,358	759	625	69
Holmes	14,424	14,232	7,774	7,445	6,769	211
Huron	28,211	29,185	5,523	5,361	5,687	516
Jackson	16,368	13,916	71	63	2	....
Jefferson	21.618	16,673	1,601	1,489	927	4
Knox	24,763	24,935	4,618	3,380	2,565	308
Lake	14,556	18,065	1,635	2,193	808	239
Lawrence	8.702	5,893	3,654	726	3	465
Licking	32,265	34,729	2,635	2,790	2,286	168
Logan	13,375	14,070	3,483	2,119	1,784	260
Lorain	34,908	39,037	3,211	3,473	4,189	420
Lucas	10,324	12,798	3,047	3,449	2,516	782
Madison	13,704	12,123	647	447	15	58
Mahoning	31,639	37,577	6,442	6,127	7,284	199
Marion	5,798	15,370	2,742	2,639	2,979	146

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Meadow.		Clover.			
	No. acres of grass other than clover.	No. tons of hay.	No. acres.	No. tons of hay.	No. bushels of seed.	No. acres plowed under for manure.
Medina	29,611	30,645	7,984	7,768	12,235	456
Meigs	16,240	16,017	1,001	5,811	52	305
Mercer	10,987	11,835	5,060	4,972	4,003	480
Miami	6,573	6,863	9,406	4,572	2,056	2,380
Monroe	18,550	16,154	1,023	666	383	68
Montgomery	11,221	12,667	15,009	6,641	1,482	3,840
Morgan	18,149	16,811	2,187	1,831	1,088	36
Morrow	26,620	24,181	1,913	2,055	2,078	135
Muskingum	34,984	32,431	2,347	1,738	595	25
Noble	18,797	16,859	589	565	226	14
Ottawa	6,357	8,745	2,320	2,962	1,154	270
Paulding	6,330	8,114	1,604	1,605	1,897	298
Perry	18,709	18,441	1,119	902	642	23
Pickaway	9,612	7,332	4,453	2,422	4,518	332
Pike	9,305	6,387	1,824	497	34	365
Portage	33,606	35,091	4,592	5,047	3,870	586
Preble	7,319	7,754	12,064	2,302	1,105	3,103
Putnam	11,828	13,018	4,123	4,030	3,830	542
Richland	23,791	23,350	8,081	5,879	4,405	394
Ross	17,121	9,448	7,641	1,725	1,532	1,754
Sandusky	9,735	10,209	6,726	7,105	4,373	308
Scioto	9,968	8,590	1,397	846	23	182
Seneca	20,198	20,377	11,798	10,484	7,756	1,970
Shelby	8,326	8,084	4,096	1,967	1,395	1,248
Stark	27,693	30,367	11,225	11,882	7,160	1,153
Summit	21,399	24,929	7,850	7,762	3,691	878
Trumbull	57,406	64,356	1,995	2,400	1,351	273
Tuscarawas	27,102	26,461	7,192	6,607	6,109	317
Union	15,902	15,711	1,420	1,219	417	72
Van Wert	11,262	13,114	4,061	2,535	2,793	311
Vinton	12,378	9,858	402	158	18	33
Warren	12,991	14,464	10,042	1,741	198	2,808
Washington	24,081	22,242	2,112	1,793	1,110	257
Wayne	24,097	26,659	16,397	18,655	11,211	1,029
Williams	23,565	23,012	9,708	9,725	7,663	447
Wood	13,727	15,805	5,512	4,540	6,753	509
Wyandot	14,605	14,273	3,181	3,204	2,904	325
Totals	1,613,819	1,657,808	408,123	304,615	235,884	59,607

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Flax.			Potatoes.		Sweet potatoes.	
	No. acres.	No. bushels.	No. pounds fibre.	No. acres.	No. bushels.	No. acres.	No. bushels.
Adams	7	85		431	26,649	34	2,797
Allen	1,228	8,582	113,000	852	64,980	20¾	1,019
Ashland	1,095	10,795	230,200	900	79,162	21	725
Ashtabula	111	574		2,933	229,552	¾	89
Athens				1,134	76,234	42	3,079
Auglaize	1,529	7,082	3,520	1,010	52,644	6¾	186
Belmont				1,231	95,440	18¼	1,564
Brown	8	68		1,925	90,129	25¼	2,053
Butler	1,132	7,107		1,277	79,836	55	5,916
Carroll	2	6		480	40,940	1½	125
Champaign	433	4,141		1,094	91,668	15	1,068
Clarke	895	8,047	52,200	1,077	102,303	33¾	3,867
Clermont	134	562		6,361	232,619	127¼	8,212
Clinton	1,039	6,258	7,900	1,530	114,099	28¼	2,062
Columbiana	107	938	37,000	1,183	106,851	3¾	680
Coshocton	⅛	1	10	916	75,659	7¼	476
Crawford	515	6,351		1,139	87,366	10	428
Cuyahoga				4,795	348,671	8	1,030
Darke	3,304	25,911	95,200	1,723	127,441	64	4,009
Defiance	7	70		863	74,643	4¼	289
Delaware	694	5,238	191,720	1,120	78,245	4¼	239
Erie				1,955	226,999	41	394
Fairfield	3	85		1,761	149,752	146	11,904
Fayette	74	457	43	555	46,624	17½	1,049
Franklin	12	51		2,362	175,681	6¾	953
Fulton	83	845		1,133	98,571	7¼	399
Gallia				1,177	84,872	52½	2,113
Geauga	292	2,993	223,350	1,536	111,802		
Greene	1,081	7,451	295,620	968	74,511	42	3,671
Guernsey	1	10		523	33,656	12	432
Hamilton				4,125	290,981	193	13,436
Hancock	1,417	12,926	72,310	1,095	92,617	6¼	414
Hardin	841	7,402	8,000	1,063	88,049	24	602
Harrison				380	32,298	7¼	210
Henry	30	2,941		1,292	87,096	2¼	130
Highland				1,819	100,863	62	4,517
Hocking	1	1		963	62,067	49	3,418
Holmes				877	81,082	10¾	865
Huron	121	1,265	10,500	1,153	110,271	2¼	360
Jackson				419	27,016	7	358
Jefferson				695	57,590	9	195
Knox	2,596	17,972	105,079	1,156	94,776	6¼	449
Lake				1,657	122,293	1	90
Lawrence	2	12		600	34,345	157	3,739
Licking	925	6,563	8	1,775	149,462	16½	747
Logan	155	1,132		669	52,739	15¾	805
Lorain	75	645	30,600	1,561	160,436	11¾	1,821
Lucas	285	1,172		2,307	196,845	2	208
Madison	96	945	31,200	674	35,281	5	165
Mahoning	950	7,815	566,135	1,222	100,117	7	212
Marion	404	3,234		957	69,398	1¾	227

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Flax.			Potatoes.		Sweet potatoes.	
	No. acres.	No. bushels.	No. pounds fibre.	No. acres.	No. bushels.	No. acres.	No. bushels.
Medina	1,415	14,192	158,100	1,214	91,262	2	162
Meigs	1	15	....	2,070	141,321	20	1,974
Mercer	1,335	8,231	4,000	865	45,267	15	580
Miami	4,811	43,940	527,636	1,185	100,955	17	1,729
Monroe	4	60	500	1,052	57,763	7¼	474
Montgomery	2,007	13,642	314,100	1,642	112,789	137	9,727
Morgan	....	....	....	796	53,934	57¼	3,880
Morrow	1,998	12,392	....	884	80,067	¾	169
Muskingum	....	....	78	1,898	111,749	91	10,331
Noble	....	....	3	671	44,984	9¾	532
Ottawa	....	....	....	879	65,105	2¾	142
Paulding	9	19	....	537	32,098	6	396
Perry	4	40	....	998	66,228	47¾	2,482
Pickaway	....	....	....	991	79,700	30	1,693
Pike	6	27	5	769	47,946	19¼	1,255
Portage	742	5,867	663,795	2,708	227,326	1	114
Preble	4,710	35,648	487,900	839	66,387	42¼	4,330
Putnam	143	1,019	4,200	1,276	98,495	10	410
Richland	224	1 679	4,000	1,551	134,258	3	282
Ross	142	1,142	1,500	1,076	79,138	20	1,871
Sandusky	....	....	....	1,367	123,085	10½	741
Scioto	1	....	....	1,123	71,935	48	3,737
Seneca	273	2,750	....	1,303	104,938	1½	48
Shelby	2,699	23,692	30,622	792	47,965	10	414
Stark	132	1,253	31,002	1,444	148,721	15½	1,745
Summit	....	....	....	1,335	126,226	3	394
Trumbull	1,061	10,890	825,190	1,661	140,722	3½	288
Tuscarawas	7	52	100	1,268	119,762	3	340
Union	657	6,382	381,930	710	55,466	6	141
Van Wert	1,127	4,253	17,547	738	55,916	8	500
Vinton	....	....	....	561	36,249	26	1,931
Warren	1,199	7,077	94,432	1,929	97,268	133	7,746
Washington	....	....	....	2,336	125,084	168	18,656
Wayne	1,849	14,801	31,040	1,818	145,465	8	580
Williams	129	1,070	750	1,014	69,279	40	3,475
Wood	37	301	31,040	1,227	113,587	6	617
Wyandot	134	1,334	....	778	61,105	4	544
Totals	48,540⅛	368,501	5,642,025	117,658	8,802,516	2,448	1,782,226

Statistics of Different Crops, etc.—Continued.

Counties.	Butter.	Cheese.	Sorghum.			Maple sugar, etc.	
	No. pounds.	No. pounds.	No. acres.	No. pounds sugar.	No. gallons syrup.	No. pounds sugar.	No. gallons syrup.
Adams	400,035	215	212	197	16,015	3,186	3,259
Allen	446,677	5,614	95	178	6,116	10,247	5,815
Ashland	694,403	498,407	21	22	2,299	157,065	25,284
Ashtabula	1,121,227	3,507,571	36	....	1,841	568,422	18,021
Athens	502,696	14,545	171	65	13,241	5,315	2,474
Auglaize	353,300	....	325	20	8,661	2,501	666
Belmont	751,759	1,314	252	20	22,866	541	2,570
Brown	518,299	1,100	253	41	13,962	430	1,651
Butler	501,934	5,041	70	....	4,551	233	4,407
Carroll	660,655	6,900	58	500	5,100	1,976	1,792
Champaign	411,024	11,200	66	20	10,497	26,046	11,937
Clarke	454,240	5,350	47	....	4,063	....	137
Clermont	596,437	40	263	1	15,354	72	1,992
Clinton	361,338	1,284	146	20	7,513	23,687	12,891
Columbiana	833,918	397,458	18	45	2,795	18,885	20,148
Coshocton	710,240	850	127	195	8,538	1,816	1,199
Crawford	605,026	....	49	....	3,436	12,149	9,110
Cuyahoga	847,461	1,182,571	1	....	203	122,059	12,151
Darke	835,313	550	300	344	15,574	1,949	7,337
Defiance	458,155	116,215	97	....	9,091	5,702	2,450
Delaware	664,195	650	109	....	4,293	17,650	21,253
Erie	1,321,563	3,620	30	....	3,862	21,478	1,275
Fairfield	654,666	7,000	122	126	10,808	6,189	6,345
Fayette	291,454	....	24	8	1,920	10	713
Franklin	645,813	200	192	130	5,168	1,255	1,873
Fulton	549,855	550,458	50	333	5,094	604	877
Gallia	408,960	12,006	525	115	38,501	2,011	355
Geauga	861,061	3,839,323	3	40	132	879,662	14,558
Greene	514,099	920	44	....	3,169	19,024	10,665
Guernsey	610,361	280	391	....	30,649	111	416
Hamilton	591,203	1,050	20	100	730	45	923
Hancock	759,664	60	46	10	3,498	22,062	14,627
Hardin	456,491	9,110	65	43	4,194	3,916	3,219
Harrison	566,939	....	53	....	5,062	221	3,521
Henry	363,706	860	79	25	7,340	1,477	1,068
Highland	557,775	903	256	....	19,268	4,995	7,095
Hocking	348,802	50	171	....	11,750	1,632	1,270
Holmes	575,909	167,993	34	88	3,183	11,963	4,476
Huron	964,557	1,019,366	88	106	5,170	96,704	12,442
Jackson	350,447	1,040	209	205	31,330	312	84
Jefferson	447,125	4,400	95	46	8,138	1,861	4,931
Knox	677,898	825	27	49	1,409	45,663	16,962
Lake	304,380	105,766	14	....	1,314	97,758	4,171
Lawrence	217,341	2,037	700	817	58,590	1,348	163
Licking	840,411	7,475	89	....	7,260	11,764	21,274
Logan	528,342	8,527	47	300	2,842	296,970	31,107
Lorain	823,126	4,161,051	50	460	4,762	167,635	11,161
Lucas	395,305	60	21	....	2,501	1,057	134
Madison	296,093	10,150	25	....	1,251	....	25
Mahoning	681,874	35,270	11	....	1,008	122,057	44,233
Marion	473,912	....	43	....	4,012	2,246	1,230

Statistics of Different Crops, etc.—Continued.

Counties.	Butter.	Cheese.	Sorghum.			Maple sugar, etc.	
	No. pounds.	No. pounds.	No. acres.	No. pounds sugar.	No. gallons syrup.	No. pounds sugar.	No. gallons syrup.
Medina	1,086,062	1,317,034	7	....	318	385,945	33,587
Meigs	488,687	14,060	263	....	18,419	2,791	1,097
Mercer	404,280	326	256	....	14,118	1,753	974
Miami	550,387	4,455	113	61	7,644	3,109	8,508
Monroe	485,878	685,662	539	....	35,410	2,994	406
Montgomery	669,502	75	103	28	9,367	6,712	11,788
Morgan	470,674	2,995	275	....	37,180	418	786
Morrow	631,139	39,030	28	5	1,897	61,051	22,642
Muskingum	843,236	2,185	252	14	16,097	662	1,738
Noble	552,130	7,920	450	....	47,287	1,358	473
Ottawa	320,731	410	35	....	2,320	505	356
Paulding	212,991	300	111	....	7,239	2,806	447
Perry	488,646	200	139	75	10,367	7,945	7,643
Pickaway	418,508	100	70	....	6,016	881	1,765
Pike	202,975	325	254	146	17,215	2,310	1,397
Portage	1,050,155	2,970,076	2	....	261	332,405	84,160
Preble	1,080,790	....	171	....	14,352	2,508	9,756
Putnam	445,920	273	148	317	9,631	4,583	2,447
Richland	747,716	13,850	24	....	1,888	78,210	30,355
Ross	331,735	18,640	152	292	10,665	1,575	5,708
Sandusky	500,848	1,890	56	20	4,395	2,589	1,590
Scioto	238,287	180	343	102	26,140	521	173
Seneca	736,969	....	58	533	3,449	24,112	11,867
Shelby	395,702	....	156	....	7,699	1,538	1,801
Stark	1,004,130	301,840	28	94	2,468	36,576	19,296
Summit	801,931	1,506,798	4	....	607	74,961	11,378
Trumbull	982,684	4,375,586	24	53	1,981	305,364	32,218
Tuscarawas	815,266	263,818	98	582	7.337	3,796	1,698
Union	499,830	11,200	87	....	5,933	87,758	10,263
Van Wert	369,072	200	102	47	7,255	2,468	557
Vinton	283,974	620	203	....	14,388	4,204	1,596
Warren	519,754	1,187	112	....	7,636	12,638	5,067
Washington	671,394	12,015	551	....	38,864	1,328	1,140
Wayne	1,063,078	51,610	21	304	1,459	53,291	11,747
Williams	827,419	122,650	26	....	1,844	36,021	5,771
Wood	713.961	350	110	44	8,569	4,420	3,746
Wyandot	446,801	98,940	21	....	2,306	5,049	4,613
Totals	56,161,306	27,533,475	11,632	7,386	869,975	4,459,115	736,286

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Lands owned in 1880.				
	Cultivated—No. acres.	Pasture—No. acres.	Wood—No. acres.	Lands lying waste.	Total number acres owned in 1880.
Adams	89,702	70,677	91,888	13,238	265,499
Allen	110,262	31,485	63,985	1,842	207,574
Ashland	136,581	46,248	50,813	2,120	237,739
Ashtabula	113,497	152,013	71,620	6,933	343,561
Athens	50,801	109,308	62,291	4,473	236,670
Auglaize	110,162	17,295	63,008	1,230	191,695
Belmont	96,953	123,210	60,109	14,832	295,104
Brown	111,739	76,643	53,238	11,136	267,098
Butler	133,421	25,822	29,985	9,785	201,576
Carroll	67,609	86,503	45,092	745	221,234
Champaign	164,557	34,213	62,667	....	261,437
Clarke	121,804	41,669	39,134	2,117	199,703
Clermont	125,120	60,530	42,937	23,102	252,427
Clinton	110,941	45,918	39,243	2,884	198,986
Columbiana	119,348	94,795	59,936	5,136	279,205
Coshocton	100,692	126,059	72,871	4,089	306,641
Crawford	139.400	25,233	46,753	1,298	212 684
Cuyahoga	86,513	76,618	26,278	4,654	194,063
Darke	194,368	23,096	85,740	7,900	311,104
Defiance	98,679	16,323	77,828	2,053	194.883
Delaware	103,025	76,863	51,354	3,086	234,329
Erie	79,187	21,167	14,903	6,302	113,138
Fairfield	125,057	80,536	50,820	6,378	270,988
Fayette	109,515	71,003	33,021	1,463	214,300
Franklin	132,384	52,326	38,867	7,234	230,811
Fulton	114,114	23,385	64,241	3,964	205,705
Gallia	72,771	85,135	61,982	10,477	221,642
Geauga	58.904	113,856	42,720	1,576	219,962
Greene	133,144	36,109	40,299	9,862	219,414
Guernsey	84,256	134.752	62,241	1,571	282,560
Hamilton	72.508	27,192	14,628	6,211	120.539
Hancock	160,032	42,893	89,278	3,381	295,585
Hardin	111,781	28,662	59,353	6,270	206,068
Harrison	53,705	128,701	44.199	250	227,855
Henry	85.709	5,511	56,224	1,262	148,708
Highland	124,088	108,302	66,322	8,589	307,301
Hocking	46,119	82,573	58,896	22,509	210,097
Holmes	115,242	54,162	52,281	3.402	225 088
Huron	131,278	90,543	47,385	6,211	275,421
Jackson	49,625	96,342	46,900	19,154	212,021
Jefferson	72,325	87,513	51,352	3,870	215,060
Knox	115,149	114,552	58,889	1,923	290,525
Lake	48,305	37,491	19,011	1,872	106,679
Lawrence	60,113	31,613	41,198	18,977	152,364
Licking	130,257	162,457	73,403	3,453	377,529
Logan	117,723	52,765	57,480	3,429	215,920
Lorain	99,125	97,718	42,805	5,016	264,358
Lucas	69,255	7,539	27,737	4,402	111,703
Madison	91,928	97,716	30,014	838	220,496
Mahoning	85,131	75,515	46,823	1,943	239,398
Marion	99,778	47,308	46,774	1,292	210,254

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Lands owned in 1880.				
	Cultivated—No. acres.	Pasture—No. acres.	Wood—No. acres.	Lands lying waste.	Total number acres owned in 1880.
Medina	97,796	91,970	41,475	2,484	237,612
Meigs	66,685	80,995	61,199	8,657	217,536
Mercer	114,055	11,848	82,467	2,682	211,052
Miami	147,568	7,773	37,879	3,320	197,593
Monroe	71,922	97,445	68,737	9,189	247,293
Montgomery	169,437	25,047	40,810	6,620	241,914
Morgan	64,771	108,769	56,434	5,337	235,311
Morrow	96,341	78,503	48,687	1,429	229,384
Muskingum	102,211	230,588	79,303	7,098	419,191
Noble	76,206	108,506	43,614	3,961	237,287
Ottawa	59,282	10,599	30,573	8,766	108,456
Paulding	43,192	3,541	53,684	9,293	106,859
Perry	51,463	111,422	43,012	2,230	207,407
Pickaway	143,355	73,667	44,033	10,472	268,354
Pike	58,143	40,502	72,663	5,232	177,263
Portage	98,831	107,188	49,878	6,753	272,375
Preble	149,573	29,779	55,485	7,458	242,295
Putnam	106,556	9,171	87,398	5,009	210,421
Richland	153,625	40,979	59,592	3,079	255,615
Ross	136,111	97,936	89,700	31,089	345,857
Sandusky	137,640	14,812	49,542	6,480	209,190
Scioto	64,714	26,418	56,309	22,743	181,288
Seneca	212,859	14,202	72,309	1,782	301,152
Shelby	123,718	11,890	56,857	2,993	195,458
Stark	163,430	51,914	43,791	5,874	348,622
Summit	109,303	56,424	31,693	8,784	217,127
Trumbull	95,589	141,233	64,301	3,220	316,963
Tuscarawas	121,015	118,589	66,018	9,973	316,292
Union	107,798	71,925	48,403	1,865	246,158
Van Wert	84,812	11,719	68,667	9,056	174,256
Vinton	39,759	68,531	53,214	17,464	182,448
Warren	116,110	32,005	33,260	6,222	198,090
Washington	112,403	111,399	93,264	11,536	328,602
Wayne	180,891	46,352	61,918	9,225	298,282
Williams	169,169	22,361	88,661	2,928	277,979
Wood	144,620	11,018	84,455	2,856	242,949
Wyandot	113,072	64,947	72,585	1,828	252,432
Totals	9,317,707	5,697,827	4,828,686	560,721	20,681,270

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Wool.	Sheep killed by dogs.		Sheep injured by dogs.		Total injury by dogs.
	Pounds shorn.	Number.	Value.	Number.	Estimate of injury done.	Aggregate amount of injury to sheep by dogs.
Adams	53,308	220	$770 00	162	$402 00	$1,172 00
Allen	90,192	311	1,429 00	251	1,312 00	2,741 00
Ashland	271,432	366	1,144 00	483	1,129 00	2,273 00
Ashtabula	163,417	348	1,412 00	256	618 00	2,030 00
Athens	402,832	461	1,624 00	191	618 00	2,242 00
Auglaize	54,374	313	1,048 00	158	398 00	1,446 00
Belmont	716,902	966	3,180 50	1,260	1,609 00	4,789 50
Brown	78,496	292	1,236 00	140	311 00	1,547 00
Butler	42,407	195	1,070 00	50	217 00	1,295 00
Carroll	633,885	329	1,079 00	164	418 00	1,497 00
Champaign	146,823	344	1,427 00	696	1,181 00	2,608 00
Clarke	246.785	464	1,906 00	326	1,134 00	3,040 00
Clermont	40,458	227	975 00	117	285 00	1,260 00
Clinton	115,314	676	2,707 00	396	1,057 00	3,764 00
Columbiana	597,784	573	1,763 00	564	1,211 00	2,974 00
Coshocton	675,553	619	2,222 50	642	1,378 50	3,601 00
Crawford	322,168	334	1,763 00	284	1,215 00	2,978 00
Cuyahoga	100,175	241	1,098 00	139	367 00	1,465 00
Darke	33,415	342	1,348 00	248	582 00	1,930 00
Defiance	53,448	151	438 00	76	145 00	583 00
Delaware	521,399	598	1,642 50	520	636 00	2,278 50
Erie	198,383	312	710 00	189	276 00	986 00
Fairfield	171,399	651	2,156 00	1,436	1,754 00	3,910 00
Fayette	124,222	679	2,501 00	329	787 00	3,288 00
Franklin	146,754	659	2,688 00	411	1,628 00	4,316 00
Fulton	134,356	423	680 00	208	385 00	1,065 00
Gallia	45,253	458	1,825 00	134	349 00	2,174 00
Geauga	115,117	144	574 00	66	134 00	708 00
Greene	175,215	480	1,885 00	318	638 00	2,523 00
Guernsey	833,248	354	1,385 00	297	544 00	1,929 00
Hamilton	17,195	178	847 00	244	432 00	1,279 00
Hancock	162,933	632	2,216 00	521	1,569 00	3,785 00
Hardin	175,588	450	1,559 00	282	607 50	2,166 50
Harrison	979,602	489	1,533 00	577	1,121 00	2.654 00
Henry	34,437	98	721 50	80	131 00	852 50
Highland	111,467	644	2,233 00	351	733 00	2,966 00
Hocking	179,531	454	1,296 00	453	1,120 00	2,416 00
Holmes	196,425	306	939 00	355	550 00	1,489 00
Huron	319,619	376	1,471 00	314	581 00	2,051 00
Jackson	43,420	371	1,084 00	122	195 00	1,279 00
Jefferson	611,888	500	2,028 00	219	863 00	2,891 00
Knox	762,582	598	2,797 25	389	837 50	3,634 75
Lake	85.890	140	556 00	112	166 00	722 00
Lawrence	10,685	163	317 00	43	66 00	383 00
Licking	1,188,188	702	2,685 00	1,500	1,598 00	4,283 00
Logan	707,421	445	1,716 00	609	1,072 00	2,788 00
Lorain	227,779	206	823 50	147	293 00	1,116 50
Lucas	26,908	210	638 00	66	93 00	731 00

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Wool.	Sheep killed by dogs.		Sheep injured by dogs.		Total injury by dogs.
	Pounds shorn.	Number.	Value.	Number.	Estimate of injury done.	Aggregate amount of injury to sheep by dogs.
Madison	358,017	621	$2,485 00	947	$992 00	$3,477 00
Mahoning	371,595	206	785 00	317	479 00	1,264 00
Marion	302,165	284	972 00	216	486 00	1,458 00
Medina	318,517	217	777 00	171	303 00	1,020 00
Meigs	136,826	369	1,145 00	337	979 00	2,124 00
Mercer	47,695	306	854 00	112	260 50	1,114 50
Miami	39,794	406	1,385 00	93	241 00	1,626 00
Monroe	164,161	249	893 00	90	153 00	1,046 00
Montgomery	21,346	242	1,161 00	144	349 00	1,510 00
Morgan	474,227	243	810 50	471	745 00	1,555 50
Morrow	567,889	431	2,209 00	362	741 00	2,950 00
Muskingum	799,187	625	2,073 50	650	1,081 00	3,154 50
Noble	374,081	271	1,036 50	283	592 00	1,628 50
Ottawa	50,689	91	250 00	92	194 00	444 00
Paulding	14,930	242	540 00	89	129 00	669 00
Perry	372,498	337	995 00	246	616 00	1,611 00
Pickaway	78,559	516	2,096 00	446	388 00	2,484 00
Pike	32,198	278	1,024 00	230	422 00	1,446 00
Portage	222,619	234	877 50	266	427 00	1,304 50
Preble	64,696	240	947 00	136	667 00	1,614 00
Putnam	47,601	187	730 00	566	720 00	1,450 00
Richland	282,589	529	1,960 00	416	777 00	2,737 00
Ross	51,248	351	1,449 00	309	486 00	1,935 00
Sandusky	106,052	422	1,546 00	329	610 00	2,156 00
Scioto	10,670	294	977 00	85	211 00	1.188 00
Seneca	280,754	467	1,986 00	372	790 00	2,776 00
Shelby	55,627	412	1,403 00	136	257 00	1,660 00
Stark	248,591	444	1,762 00	819	828 00	2,690 00
Summit	115,206	221	907 00	210	521 00	1,428 00
Trumbull	295,838	382	1,777 00	1,567	2,999 00	4,776 00
Tuscarawas	463,906	701	2,563 00	677	1,222 00	3,785 00
Union	416,815	441	1,475 00	432	885 50	2,360 50
Van Wert	33,639	193	565 00	90	146 25	711 25
Vinton	168,796	252	938 50	286	598 50	1,537 00
Warren	86,784	377	1,450 00	281	586 00	2,036 00
Washington	329,218	353	1,141 50	246	327 00	1,468 50
Wayne	186,368	343	1,267 00	664	1,028 00	2,295 00
Williams	151,560	231	842 00	291	842 00	1,684 00
Wood	73,035	349	1,203 00	231	487 00	1,690 00
Wyandot	282,356	548	2,170 00	707	1,082 00	3,252 00
Totals	21,649,414	33,297	$122,684 50	31,607	$60,394 25	$185,215 75

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Orchards.						Bees.		Eggs.
	No. acres.	Apples—No. bushels.	Peaches—No. bushels.	Pears—No. bushels.	Cherries—No. bushels.	Plums—No. bushels.	No. hives.	Pounds honey.	No. dozens.
Adams	4,374	175,131	13,486	1,807	720	641	1,468	15,880	293,163
Allen	4,167	302,253	5,467	521	348	31	1,734	17,147	284,173
Ashland	4,620	395,285	9,172	725	378	44	1,180	10,655	396,185
Ashtabula	6,714	536,424	6,580	1,135	1,112	123	711	16,955	353,410
Athens	5,084	186,284	34,996	658	4,877	1,749	1,294	17,106	292,221
Auglaize	3,038	151,701	2,052	318	96	16	626	11,690	365.830
Belmont	6,781	601,162	15,339	2,452	3,429	1,200	2,548	7,336	443,950
Brown	4,459	262,261	5,372	983	1,451	1,008	2,187	22,735	401,282
Butler	3,395	124,292	10,377	2,819	878	240	1,226	12,363	582,381
Carroll	4,785	358,865	35,307	137	273	55	995	5,114	243,847
Champaign	3,226	232,377	11,367	1,685	1,447	255	1,051	6,377	295,147
Clarke	3,011	209,149	15,105	2,192	409	175	735	3,813	335,616
Clermont	9,195	420,140	42,141	9,390	5,557	5,749	1,865	30,008	349,722
Clinton	3,147	168,130	7,842	2,260	461	620	1,247	10,184	246,716
Columbiana	8,676	558,854	60,097	915	1,198	394	2.758	17,363	518,075
Coshocton	5,881	401,412	69,386	460	724	384	1,628	7,487	443,343
Crawford	4,321	500,243	3,523	876	1,024	13	1,296	9,149	346,146
Cuyahoga	6,082	750,001	6,856	1,826	1,584	227	....	13,832	305,046
Darke	6,084	353.896	10,373	2,808	1,910	76	1,364	17,843	638,459
Defiance	3,277	151,663	3,748	679	439	5	1,282	18,555	323,125
Delaware	4,432	344,539	11,671	502	512	189	895	3,329	446,530
Erie	3,728	502,167	27,603	1,056	2,309	107	594	11,870	112,214
Fairfield	5.522	324,550	28,444	1,544	3,034	4,347	1,967	4,488	530,523
Fayette	2,083	103,121	17,365	1,291	235	556	1,046	6,845	218,517
Franklin	5,069	420,453	17,929	1,541	307	268	1,159	3,134	323,695
Fulton	5,694	393,390	7,141	710	918	24	1,484	14,024	373,999
Gallia	4,839	197,815	24,890	513	2,089	514	1,498	12,170	214,005
Geauga	4,122	488,984	3,255	1,163	373	128	949	9.186	173,092
Greene	3,503	205,595	17,085	4,273	1,128	932	1,360	8,384	363,393
Guernsey	7,328	318,897	60,147	557	1,223	705	1,043	4,160	293,985
Hamilton	4,972	242,813	19,016	11,159	3,582	1,162	939	15,208	238,104
Hancock	5,923	629,666	6,352	583	448	7	1,406	13,319	334,581
Hardin	3,672	313,165	4,511	429	402	74	2,167	34,193	289,643
Harrison	4,102	256,617	22,497	686	250	57	680	3,030	238,299
Henry	3,514	198,281	3,709	525	710	25	678	17,335	367,766
Highland	4,998	313,592	24,943	2,996	2,523	1,384	1,934	19,816	377,419
Hocking	3,822	126,276	25,757	295	2,373	377	787	2,785	219,221
Holmes	4,982	472.859	30,750	560	913	81	1,086	8,396	500,621
Huron	6,752	800,243	15,348	805	1,212	26	1,016	20,108	392,833
Jackson	3,410	102,898	23.779	304	3,075	303	461	5.174	197,652
Jefferson	4,494	295,784	7,036	369	280	135	1,447	3,991	231,348
Knox	5,561	389,555	20,689	362	1,010	30	1,400	9,686	422,283
Lake	3,096	344,466	16,073	683	740	305	555	9,557	95,024
Lawrence	4,933	199,876	14,963	326	872	347	846	6,880	121,121
Licking	6,765	468,232	41,143	1,293	1,290	1,447	1,499	9,738	625,593
Logan	3,900	556,553	10,875	1,314	982	271	1,872	18,560	315,873
Lorain	5,960	811,519	24,997	915	684	35	1,062	14,936	281,583
Lucas	3,938	244,319	6,157	853	746	53	774	7,823	188.228
Madison	2,276	94,281	13,696	785	184	186	1,844	11,097	358,857
Mahoning	4,876	389,925	7,281	757	248	266	1,331	16,071	264,405
Marion	3,167	257,135	5,644	601	462	62	1,033	11,898	370,797
Medina	5,876	640,166	5.682	1,086	961	93	1,413	20,793	255,569
Meigs	6,021	157,938	20,935	607	2,858	692	1,549	16.384	244,064
Mercer	3,099	131,208	7,292	407	236	26	1,286	10,859	367,492
Miami	4,214	315,209	8,924	3,691	2,133	132	1,103	6,421	329,927
Monroe	5,829	474,918	9,253	721	4,960	1,351	966	4,037	302,103
Montgomery	4,754	285,580	14,121	8,542	1,192	320	1,694	5,019	347,894
Morgan	5,239	224,124	41,621	999	5,615	3,987	1,128	7,409	353,532
Morrow	5,372	434,995	7,212	539	497	26	854	7,322	325,839
Muskingum	7,651	330,064	91,971	2,252	4,443	5,020	1,738	4,502	409,185
Noble	4,596	313,430	26,122	584	2,688	1,570	1,115	6,484	375,039
Ottawa	3,127	120,330	24,198	1,222	479	77	404	6,163	152,991
Paulding	1,760	37,769	1,595	170	172	7	1,399	65,285	152,659
Perry	3,763	240,152	22,547	1,051	3,774	4,405	923	2,638	239,333
Pickaway	3,067	128,096	28,520	1,106	488	547	1,725	6,258	360,103
Pike	3,325	124.322	32,961	382	1,199	906	878	3,985	167,152
Portage	6,513	694,975	11,311	746	816	141	1,382	20,253	271.474
Preble	3,489	206,542	3,117	3,826	867	531	1,246	5,056	234,586
Putnam	3,311	195,873	4,463	207	245	....	1,203	20,255	353,959
Richland	5,707	490,598	7,521	858	532	70	882	8,118	373,294
Ross	5 153	214,133	60,111	2,358	1,801	4,593	1,275	9,834	343,816
Sandusky	4,816	535,621	18,003	579	1,352	29	1,191	20,752	246,263

Statistics of Different Crops, etc.—Continued.

Counties.	Orchards.						Bees.		Eggs.
	No. acres.	Apples—No. bushels.	Peaches—No. bushels.	Pears—No. bushels.	Cherries—No. bushels.	Plums—No. bushels.	No. hives.	Pounds honey.	No. dozens.
Scioto	2,910	71,629	10,822	167	486	467	829	14,154	110,780
Seneca	6,666	765,716	6,277	733	1,068	34	1,455	10,347	333,545
Shelby	3,341	156,074	6,677	750	517	123	955	10,085	305,605
Stark	6,770	713,395	20,276	1,467	2,084	143	1,586	11,251	437,419
Summit	4,961	620,427	7,805	1,245	1,860	38	1,003	12,550	218,310
Trumbull	5,700	517,011	3,399	789	134	68	1,164	11,859	223,521
Tuscarawas	7,053	551,059	47,516	1,129	1,059	633	1,472	7,691	352,119
Union	3,486	232,215	6,767	515	716	142	1,0 3	7,652	434,689
Van Wert	3,023	145,650	4,635	517	661	5	1,592	20,391	255,671
Vinton	3,045	57,238	16,930	149	2,137	247	641	5,580	172,914
Warren	4,613	181,532	7,401	5,575	933	865	1,123	10,331	350,660
Washington	10,270	407,810	49,236	896	7,249	3,998	1,556	12,219	389,058
Wayne	6,482	626,294	15,537	1,333	2,217	55	1,830	10,360	436,546
Williams	7,064	441,382	5,126	1,287	1,024	8	894	8,953	360,844
Wood	5,729	397,869	7,062	897	778	132	1,130	16,873	389,290
Wyandot	3,712	347,537	8,718	839	715	97	1,315	19,183	310,628
Totals	423,306	30,089,950	1,600,996	119,617	124,375	59,989	108,959	1,056,102	28,036,887

Statistics of Different Crops, etc—Continued..

Counties.	Grapes and wines.				Tobacco.	
	Acres planted in 1880.	Whole No. acres in vineyard in 1880.	Pounds of grapes in 1880.	Gallons of wine pressed in 1880.	No. acres.	No. pounds.
Adams	9	23	4,150	501	1,568	1,187,911
Allen	17	502	45,170	983	13	3,625
Ashland	...	63	80,406	1,189	7	5,930
Ashtabula	14	93	267,085	437	12	4,597
Athens	...	25	23,455	502	109	90,146
Auglaize	...	12	8,530	270	13	9,890
Belmont	30¾	243	372,261	11,534	1,530	1,679,158
Brown	37	148	36,375	3,898	5,004	4,156,921
Butler	10	27	198,450	4,925	471	488,313
Carroll	3¾	6¾	15,720	152	1¼	170
Champaign	...	...	...	...	4	3,730
Clarke	1¾	7¾	14,960	70	132	162,765
Clermont	58½	421	385,878	11,676	4,282	4,044,972
Clinton	...	1¼	4,660	212	72	56,580
Columbiana	2¾	66¾	78,727	2,470	1¼	230
Coshocton	2½	40¾	72,945	2,065	7½	3,145
Crawford	2	28	60,804	1,072	1	50
Cuyahoga	87	1,148	1,984,961	31,180	⅛	51
Darke.	3	83	27,349	183	2,951	3,171,600
Defiance	½	1	7,814	115	127	99,128
Delaware	...	4½	37,624	164	7	5,686
Erie	31½	1,368	3,740,282	350,264	5	460
Fairfield	2	114¾	139,715	4,466	6	3,338
Fayette	1	11¾	19,859	2,000	3⅝	920
Franklin	¾	46	96,885	4,966	½	68
Fulton	6¼	8	18,260	404	2⅛	890
Gallia	2½	2	3,120	144	318¾	189,690
Geauga	4	12½	40,005	420	1	850
Greene	...	...	3,220	5	730	803,862
Guernsey	...	421	28,035	298	781	650,792
Hamilton	52	286	470,907	10,777	11	23,400
Hancock	1½	10¼	47,595	1,299	...	...
Hardin	...	8	60,149	594	4⅛	2,261
Harrison	...	1¼	910	12	...	...
Henry	...	3½	7,100	261	1⅛	625
Highland	2	6	9,050	200	268	186,463
Hocking	7	30	24,476	421	23	11,556
Holmes	18	42¼	45,378	1,094	4 3/16	884
Huron	4½	47½	81,230	336	1½	122
Jackson	1	4	1,125	6	3	805
Jefferson	5	22	7,275	281	...	...
Knox	6½	23	46,820	7,356	3¼	1,775
Lake	29	152	215,430	1,436	30	36,280
Lawrence	...	...	...	...	230	144,187
Licking	2½	17½	57,769	469	1¾	2,110
Logan	4¾	5¾	29,985	400	1¼	720
Lorain	37½	471¾	609,086	2,276	7	900
Lucas	12	201	667,057	14,510	...	...
Madison	3	11	28,777	597	4⅜	1,078
Mahoning	4¾	35¼	80,134	1,250	9	985
Marion	2¼	4¾	32,506	808	3⅛	1,325

STATISTICS OF DIFFERENT CROPS, ETC.—Continued.

Counties.	Grapes and wines.				Tobacco.	
	Acres planted in 1880.	Whole No. acres in vineyard in 1880.	Pounds of grapes in 1880.	Gallons of wine pressed in 1880.	No. acres.	No. Pounds.
Medina	28	....	46,008	176	19	29,048
Meigs	1½	22¾	23,725	595	¾	775
Mercer	3½	7	21,792	1,352	22¼	12,061
Miami	1¼	1	10,232	....	735	934,436
Monroe	¾	53¼	73,510	7,480	2,421	2,057,246
Montgomery	4	21	56,345	1,284	9,614	10,129,937
Morgan	2½	23	27,770	1,084	558	432,733
Morrow	....	11½	32,374	329	⅛	395
Muskingum	2	83	232,508	5,348	6	480
Noble	1	13	28,400	3,445	2,251	2,183,704
Ottawa	73	2,097	6,239,615	749,805	10	220
Paulding	¼	5	20,230	95	12	8,516
Perry	12¾	192¾	122,860	2,283	11	9,205
Pickaway	....	10¼	10,960	650	1	70
Pike	3	22	10,006	377	24	12,721
Portage	18	7½	37,620	525	1	940
Preble	1¾	4½	22,935	330	2,242	2,553,815
Putnam	3	¼	47,460	473	⅞	2,140
Richland	1	174¾	127,430	479	¼	200
Ross	10½	130¾	84,290	4,867	7	1,925
Sandusky	5½	23½	24,582	4,911	4	540
Scioto	6	23	4,804	1,592	64	7,235
Seneca	1	16	53,060	3,958	....	....
Shelby	3¼	16	11,190	153	116	90,720
Stark	7¼	627	212,297	1,718	274	44,119
Summit	10	31½	100,796	955	5	5,000
Trumbull	3¾	40	94,063	386	....	....
Tuscarawas	5	24¼	56,156	681	4	3,680
Union	1	7	69,030	841	2	240
Van Wert	1	3	56,136	558	12	2,374
Vinton	....	1½	1,100	....	42	28,913
Warren	....	4½	9,570	308	1,575	1,332,551
Washington	4	96	186,760	11,324	1,134	963,804
Wayne	4	46	129,267	3,937	48	70,710
Williams	3	4	23,353	228	....	14
Wood	21	42	85,651	125	3	855
Wyandot	4	18½	65,870	2,685	5	3,800
Totals	766¼	10,315	18,526,219	1,296,295	40,050	38,166,058

Statistics of Different Crops, etc.—Continued.

Counties.	Domestic animals died from diseases.							
	Hogs.		Sheep.		Cattle.		Horses.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Adams	607	$2,133	956	$2,426	187	$3,175	103	$5,380
Allen	2,156	10,162	828	2,862	263	4,166	203	12,190
Ashland	324	1,385	810	2,497	193	3,722	92	7,885
Ashtabula	215	1,446	1,624	5,566	391	7,682	129	8,197
Athens	230	1,015	1,965	5,214	213	3,253	76	4,290
Auglaize	3,225	10,744	424	1,082	338	4,717	179	9,946
Belmont	612	2,859	7,278	18,467	372	6,563	176	11,250
Brown	2,273	7,703	1,758	5,123	360	7,194	189	11,212
Butler	10,139	42,139	947	3,663	368	8,877	275	21,110
Carroll	116	683	4,201	9,144	201	3,355	87	6,305
Champaign	1,628	6,563	949	2,749	164	4.088	171	14,499
Clarke	3,598	16,671	942	3,197	214	5,788	182	13,465
Clermont	2,080	7,516	1,247	3,839	350	7,623	209	11,502
Clinton	3,092	10,295	1,147	3,298	219	5,554	152	8,703
Columbiana	267	1.364	5,490	13,172	363	7,022	148	8,950
Coshocton	707	2,740	3,674	9,243	235	4,170	135	8,410
Crawford	1,811	6,880	1,205	2,047	226	3,672	125	7,730
Cuyahoga	344	1,658	1,102	3,312	206	5,785	136	7,898
Darke	4,853	19,838	442	1,549	571	9,100	274	17,717
Defiance	2,071	7,253	451	1,015	235	3,287	131	8,282
Delaware	1,002	4,057	4,062	11,201	247	6,770	193	15,308
Erie	97	656	457	1,138	104	2,643	75	6,905
Fairfield	1,561	6,221	1,264	3,692	340	7,730	165	10,853
Fayette	4,762	17,843	822	2,307	192	5,442	192	11,295
Franklin	5,272	26,844	2,323	6,253	390	9,209	251	16,123
Fulton	680	3,174	716	1,883	137	2,707	97	11,735
Gallia	502	2,024	761	1,750	248	3,668	99	4,817
Geauga	105	665	2,034	6,418	281	6,764	67	4,815
Greene	5,859	22,767	1,235	4,329	309	7,092	251	16,423
Guernsey	169	920	8,135	18,299	193	3,174	90	4,660
Hamilton	2,732	11,945	352	1,053	220	5,669	197	9,846
Hancock	3,790	15,730	887	2,759	289	5,496	184	12,612
Hardin	1,831	6,065	1,144	3,147	292	6,378	184	10,065
Harrison	132	748	6,493	14,629	165	3,173	62	4,037
Henry	1,079	3,359	260	623	223	3,639	94	5,097
Highland	2,321	8,221	1,864	5,331	280	6,372	151	8,511
Hocking	504	1,762	1,712	3,763	265	2,995	103	5,040
Holmes	665	2,791	1,743	5,129	267	6,858	172	11,285
Huron	272	1,530	1,208	3,178	227	5,096	128	8,395
Jackson	431	1,443	629	1,395	206	3,496	74	3,644
Jefferson	344	1,367	6,611	13,685	244	4,021	128	8,165
Knox	547	2,115	3,827	9,935	238	4,004	121	8,867
Lake	91	543	464	1,600	95	1,933	38	2,140
Lawrence	438	1,315	374	735	238	3,669	134	7,025
Licking	1,126	4,730	8,912	23,041	356	6,899	206	12,991
Logan	2,486	11,302	2,537	7,770	265	5.377	231	16,275
Lorain	283	1,733	1,358	4,459	269	7,174	105	8,910
Lucas	1,663	6,459	486	1,570	201	3,908	155	10,389
Madison	6,103	27,192	1,705	6,158	302	6,339	208	13,775
Mahoning	105	488	1,845	4,965	141	3,497	72	4,975

Statistics of Different Crops, etc.—Continued.

Counties.	Domestic animals died from diseases.							
	Hogs.		Sheep.		Cattle.		Horses.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Marion	1,759	$6,833	1,792	$5,072	178	$4,303	195	$13,468
Medina	264	1,415	1.830	5,347	241	5,896	126	8,902
Meigs	232	891	1,309	3,510	183	3,094	92	4,731
Mercer	4,679	13,435	552	1,382	529	6,880	263	13,066
Miami	1,815	6,263	490	2,264	336	7,080	208	16,800
Monroe	489	2,183	2,024	4,042	239	3,539	101	4,830
Montgomery	2,924	11,389	231	931	432	8,105	295	19,324
Morgan	209	889	2,089	5,212	196	2,303	76	3,592
Morrow	236	1,237	2,770	7,886	196	4,308	93	7,578
Muskingum	255	1,362	5,299	11,555	263	4,315	129	7,871
Noble	376	1,716	2,445	6,091	310	4,109	80	5,378
Ottawa	638	2,419	295	758	151	2,566	90	6,859
Paulding	2,714	5,842	411	658	438	6,162	279	11,876
Perry	388	1,942	3,002	9,206	212	4,141	119	7,734
Pickaway	5,420	23,426	736	2,350	255	6,630	206	15,265
Pike	472	1,475	617	1,659	156	2,567	134	5,388
Portage	169	1,088	2,307	7,514	270	6,964	117	7,559
Preble	3,162	17,275	768	2,958	260	5,267	227	16,700
Putnam	5,485	21,491	626	1,848	364	5,640	214	3,738
Richland	379	1,594	1,763	4,734	187	3,214	115	9,472
Ross	1,949	8,020	455	1,385	230	5,560	172	10,246
Sandusky	664	3,341	644	1,742	162	3,028	114	8,878
Scioto	827	2,321	221	466	200	2,836	95	5,516
Seneca	916	3,690	1,055	2,595	251	4,770	173	13,895
Shelby	2,748	9,391	434	1,251	321	5,053	178	9,795
Stark	494	2,054	1,940	5,873	357	5,761	174	12,340
Summit	275	1,565	834	2,596	248	6,020	110	8,571
Trumbull	216	1,488	3,043	9,974	420	10,656	141	8,703
Tuscarawas	428	2,084	4,246	10,829	371	6,020	175	10,316
Union	2,083	8,356	3,093	8,799	218	5,063	198	19,081
Van Wert	2,549	8,876	351	1,017	287	4,039	160	8,716
Vinton	133	708	1,561	3,880	173	2,693	67	2,880
Warren	5,601	27,495	1,349	4,371	326	8,159	190	12,506
Washington	395	1,731	2,638	6,966	366	5,313	152	7,021
Wayne	512	2,401	879	2.964	326	5,393	187	14,805
Williams	438	1.848	815	2,404	204	4,174	108	7,951
Wood	3,545	13,387	685	1,955	281	5,010	182	13,433
Wyandot	1,688	8,078	1,750	4,702	202	3,549	141	9,702
Totals	144,618	$587,955	160,989	$430,406	23,232	$450,365	13,275	$854,381

COMPARATIVE TABLE, EXHIBITING THE NUMBER OF BUSHELS OF WHEAT AND CORN PRODUCED ANNUALLY, FROM 1850 TO 1880, INCLUSIVE.

[Copied, except the notes and the figures for 1880 and 1881, from Ohio Statistics for 1879.]

Year.	Bushels of wheat.	Average number of bushels to acre.	Bushels of corn.	Average number of bushels to acre.
1850	31,500,000	18.	56,619,608	36.8
1851	25,309,225	15.2	61,171,282	36.7
1852	23,043,737	14.1	58,165,517	33.6
1853	17,118,311	12.	73,436,070	40.
1854	11,889,110	8.	52,171,551	26.
1855	19,569,320	13.81	87,587,434	39.7
1856	15,333,837	10.2	57,802,515	27.7
1857	25,397,614	14.	82,555,186	36.6
1858	17,655,483	10.4	50,863,582	27.7
1859	13,317,967	7.3	68,730,846	29.5
1860	23,640,356	12.8	91,588,704	38.2
1861	20,055,424	11.	74,858,878	33.5
1862	29,764,887	12.	62,764,887	30.
1863	20,452,410	11.36	54,614,617	27.
1864	15,541,385	9.33	54,053,491	27.
1865	13,234,139	9.	68,053,668	35.
1866	5,824,747	4.50	80,386,320	36.50
1867	13,350,726	11.51	63,875,064	29.84
1868	16,480,059	11.31	76,725,288	34.37
1869	26,499,729	15.37	62,443,346	28.36
1870	18,726,341	11.29	88,565,299	37.52
1871	22,274,378	13.27	98,363,060	36.67
1872	18,087,664	11.22	103,053,234	40.89
1873	21.974,385	12 61	84,049,328	35.07
1874	26,896,818	14.51	101,815,494	39.75
1875	17,867,967	9.22	97,825,024	34.08
1876	15,354,569	10.18	112,552,642	36.87
1877	27,306,566	15.63	101,884.305	32.48
1878	35,218,783	16.58	114,839,127	37.78
1879	41,052,120	17.78	96,908,800	34.
1880	48,540,307	17.2	185,414,594	38.9
1880, Estimate by State Board November 1880	52,673,083	18.1	115,321,472	....
1881, Estimate by State Board August 1881	38,010,057	13.3	74,125,439	....

NOTES.

Average per acre of first term of nine years, 12.86; average total, 20,754,000 bushels.
Average per acre of second term of nine years, 9.86; average total, 17,245,000 bushels.
Average per acre of third term of nine years, 12.11; average total, 20,462,000 bushels.
Average per acre of last five years, 16.1; average total, 38,025,566 bushels.

The estimates by the State Board are somewhat higher than those obtained through township assessors. Farmers usually discount "seed and bread" in reporting to the latter.

REPORT OF THE OHIO STATE BOARD OF AGRICULTURE.

PART II.

CROP REPORTS—INSPECTION OF FERTILIZERS—FARMERS' INSTITUTES.

INTRODUCTORY.

To the General Assembly of the State of Ohio:

On page 1, of this report, brief reference is made to the new work of the State Board, authorized and provided for by your Honorable Body at the session of 1881. That work was already begun by the board before the appropriation was made by the General Assembly, but has since been pushed with greater diligence and vigor. The annual address by President Wing, on page 33, of this volume, gives full account of the general character of that work, and of the causes that led the board to undertake it. Also, on page 19, still further explanation is given of the plan. It remains to report what has actually been done up to date, September 1, 1881.

Farmers' Institutes were held in about twenty-five different counties during the winter, usually occupying two days and one evening each. The Secretary of the State Board, in correspondence with local committees, arranged time, place, programme, speakers and discussions. He usually delivered two or three addresses or lectures himself, and in the absence or failure of other speakers sometimes gave as many as four or even five addresses. Very cordial and efficient aid was rendered by President Edward Orton and Professor N. S. Townshend, of the Ohio State University (Agricultural and Mechanical College), one or the other of whom usually attended one day of each institute, unless absolutely prevented by sickness or pressing duties, and lectured and answered questions proposed by members of the audience. Special attention is here called to the fact that these services were *gratuitously rendered* at no little personal inconvenience and effort, and in addition to regular college duties—in addition also to the "Farmers' Class" or Agricultural Lecture Course at the College two weeks in January. Your attention is also called to the fact that all traveling expenses of both gentlemen were paid, by vote of the Trustees, from the funds of the College. And inasmuch as nearly all the Institutes were held *before* any appropriation was made or assured by the General Assembly, it is plain that the Institutes could not possibly have been made the complete success they were but for this timely and efficient aid.

The Institutes were well attended, the audiences ranging from one hundred to five hundred, and the interest manifested in the lectures, papers and discussions was lively and deep, and there is every evidence that the meetings did great good by arousing interest and stimulating to scientific research among farmers; and they often resulted in the establishment of permanent organizations or clubs for agricultural discussion. In regard to the Institutes for the coming winter, the following circular has been widely published on the cover of our August crop report and in various newspapers:

FARMERS' INSTITUTES, under the joint auspices of the Ohio State Board of Agriculture and the various Local Agricultural Societies or Granges, will be held this winter in some twenty-four different counties of the State, from about November 20th, 1881, to March 1st, 1882.

Encouraged by the marked success of the Institutes held last winter, the State Board has determined to put still more time, money and energy into the work the coming winter. Secretary Chamberlain will attend nearly all the Institutes, and give one or more lectures, as may be required. The different members of the Board will attend the meetings held in their respective localities, and read papers, or join in the discussions.

Prof. N. S. Townshend, so popular among farmers, will lecture at several Institutes, and it is the expectation that lectures will be given at each by some one of the following members of the Faculty of our Agricultural College: President Scott, and Professors Orton, Norton, Tuttle, McFarland, Mendenhall, Lord, Lazenby and others. Also, we expect a full week's work each from Professor Kedzie, the Agricultural Chemist, who has done so much to advance the interests of Agriculture in Michigan, and Professor Cook, the noted Entomologist, both of the Michigan Agricultural College at Lansing Also, one or more lectures from Prof. O. N. Stoddard, of Wooster, and from several other noted scientific gentlemen.

The Institutes will be held whenever the local organization (or individuals) will thoroughly work the field, bear *local* expenses, thoroughly advertise, insure an audience of 500 or more, furnish good music to enliven the exercises, and organize and bring out local talent to present brief practical papers and essays, and join in the discussions.

Any such organizations should report at once to Secretary W. I. Chamberlain, at Columbus, stating the place, and prospects, and about what time would be preferred, so that he may make out a general programme of dates and places that shall require the least possible unnecessary and wearisome travel. All except local expenses will be borne by the Board of Agriculture and the University Trustees.

Of course this enlarged work, with the employment of foreign talent, will necessitate greatly enlarged expense. The entire expense to the State for the winter of 1880–81 did not greatly exceed $100, aside from the regular salary of the Secretray. For the winter of 1881–82, it is believed that not less than $500 will be required. This will not be deemed extravagant, when it is known that the annual expenses of the "Teachers' Institutes" for the institute year 1879–80, were $20,136.92. [Ohio School Report, 1880.]

Crop and Stock Reports have been made month by month, as the state of the crops and condition of farm stock and the state of the markets seemed to require. The first was November, 1880, and gave a very accurate estimate of the crops, especially wheat, with wheat maps of the State for the crops of 1879 and 1880. This was a most attractive feature of the report, and received the unqualified approval of people and press, the electrotypes of the maps having been sought and republished by some twenty leading papers of the State. This year reports have been published in May, July and August, and the final one for the summer will come out about October 1st. The value of these reports is unquestioned. Their main points are telegraped by the Associated Press as soon as ascertained, and advance sheets of the report are promptly sent to the leading agricultural papers of the country, and to one Republican and one Democratic newspaper in each county of Ohio, and republished by many of them. The monthly edition of the report is 6,000, and they are all called for by farmers, grain dealers, manufacturers and dealers in fertilizers and business men in general. Most of the western State Boards are doing a similar work, and it is now generally conceded that the general interests of agriculture and of business require that *the State* should furnish this *prompt*, *reliable* and *impartial* information as to the actual condition of crops and farm stock.

Inspection of Fertilizers.—The act of March 16, 1881, imposes new and difficult duties upon the Secretary of the State Board. It makes him, in effect, State Inspector of Fertilizers. The law is printed in full at the close of these remarks. The duties it imposes upon the Secretary he has, thus far, discharged to the best of his ability. The inevitable effect of the law must be to drive out inferior goods, or compel manufacturers to adjust their prices approximately, at least, to the real value of their goods. For example, in the table on pages 367–8, Record Number 28 sells at $25, and is really worth $5.22, while Record Number 29 sells at $34, and is worth $45.28, analyzed by *the same chemist*, and valued on the *same scale of prices* for the ingredients. Such facts are worth knowing.

Immediately after these remarks and the law, are reprinted the first sixteen pages of the August Crop Report. They serve to give an idea of quality and value of our crop reports, and of the operations of the fertilizer law; and many of the facts and conclusions are of permanent value and worthy of permanent record here. The fertilizer law may need slight amendments on some points to adapt it to the advanced stage of chemical and agricultural knowledge, but its object and scope are unquestionably beneficent.

In conclusion, we beg to say, that the State Board of Agriculture has endeavored faithfully to discharge the new duties imposed by your Honorable Body in the session of 1881, and wisely to use the additional appropriations then made. At the proper time and place, a detailed report of these expenditures will be made.

Respectfully submitted, in behalf of the Board.

W. I. Chamberlain,
Secretary.

THE FERTILIZER LAW.

"AN ACT TO PREVENT FRAUD IN THE MANUFACTURE AND SALE OF COMMERCIAL FERTILIZERS."

REVISED STATUTES, CHAPTER 21—FERTILIZERS.

SECTION 4446 *a*. Any person or company who shall offer, sell, or expose for sale, in this State, any commercial fertilizer, the price of which exceeds ten dollars a ton, shall affix to every package, in a conspicuous place on the outside thereof, a plainly printed certificate, stating the number of net pounds in the package sold or offered for sale, the name or trade-mark under which the article is sold, the name of the manufacturer, and the place of manufacture, and a chemical analysis stating the per centage of nitrogen, or its equivalent in ammonia, in an available form, of potash soluble in water, and of phosphoric acid in an available form (soluble or reverted), as well as the total phosphoric acid.

SEC. 4446 *b*. Before any commercial fertilizer is sold or offered for sale, the manufacturer, importer, or party who causes it to be sold or offered for sale within the State of Ohio, shall file with the Secretary of the Ohio State Board of Agriculture, a certified copy of the certificate referred to in section one [4446 *a*] of this act, and shall deposit with said secretary a sealed glass jar, containing not less than one pound of the fertilizer, accompanied with an affidavit that it is a fair average sample.

SEC. 4446 *c*. The manufacturer, importer, or agent of any commercial fertilizer exceeding ten dollars per ton in price, shall pay annually, on or before the first of May, a license fee of twenty dollars for the privilege of selling or offering for sale within the State, said fee to be paid to the Secretary of the Ohio State Board of Agriculture: Provided, that whenever the manufacturer or importer shall have paid the license fee herein required for any persons acting as [*agents for*] such manufacturer or importer, such agents shall not be required to pay the fee named in this section.

SEC. 4446 *d*. All analyses of commercial fertilizers sold within the State, shall be made by or under the direction of the Secretary of the Ohio State Board of Agriculture, and paid for out of the funds arising from license fees, as provided for in section three [4446 *c*]. At least one analysis of each fertilizer sold shall be annually made.

SEC. 4446 *e*. Said Secretary shall publish annually, a correct report of all analyses made and certificates filed, together with a statement of moneys received on account of license fees and expended for analyses; and any surplus arising from license permits shall be placed to the credit of the agricultural fund.

Sec. 4446*f*. Any person or party who shall offer or expose for sale any commercial fertilizer without complying with the provisions of sections one, two, and three [4446 *a*, *b*, *and c*,] of this act, or shall permit an analysis to be attached to any package of such fertilizer, stating that it contains a larger per centage of any one or more of the constituents named in section one [4446 *a*] of this act, than it really does contain, shall be fined not less than two hundred dollars for the first offense, and not less than five hundred dollars for every subsequent offense, and the offender, in all cases, shall also be liable for damages sustained by the purchasers of such fertilizers; provided, however, that a deficiency of one per cent. of the nitrogen, potash or phosphoric acid claimed to be contained, shall not be considered as evidence of fraudulent intent.

Sec. 4446 *g*. Suit may be brought for the recovery of fines or damages, under the provisions of this act, in the county where the fertilizer was offered for sale, or where it was manufactured; and all fines so recovered, shall be paid into the treasury of the State by the court collecting the same.

Sec. 4446 *h*. The Secretary of the Ohio State Board of Agriculture, or any person by him deputized, is hereby empowered to select from any package of commercial fertilizer exposed for sale in any county in Ohio, a quantity not exceeding two pounds, which quantity shall be for analysis to compare with sample deposited with said Secretary, as provided in section two [4446 *b*] of this act, and with the printed certificate found on the given package found on sale.

Sec. 4446 *i*. All suits for the recovery of fines under the provisions of this act, shall be brought by the Secretary of the Ohio State Board of Agriculture, in the name of the State of Ohio.

Section 2. This act shall take effect and be in force from and after the first day of May, 1881.

CROP REPORT FOR AUGUST, 1881.

INTRODUCTORY REMARKS.

DELAY IN PUBLISHING.

Several causes have combined to delay the publication of the August Report. A misunderstanding in the Secretary of State's office delayed the printing of the necessary threshers' blanks and blanks for returns. The absence of our chemist, Prof. Lord, delayed the analyses of fertilizers promised in this number, and finally the absence of the Secretary, to address several immense meetings of farmers in different counties, together with the pressing work of the office in preparing for the State Fair, and the publication of our annual volume, all added to the delay. The returns from threshers were, however, fairly in August 20, and the work of condensing and tabulating begun in the morning of that day, and by eleven o'clock that night the complete tables for wheat, oats, and corn following these remarks, were ready for the printer, and the leading facts were given to the press by telegraph.

THE IMPORTANCE OF THE FIGURES

Can hardly be overestimated. The wheat and corn markets of the country are excited. Wheat in Chicago has advanced on the average about *one cent a day* now for nearly four weeks in succession, since the immense shortage at home became apparent through careful crop estimates like ours, as the crops were maturing. Hence, actual and reliable returns

FROM THE THRESHING MACHINES

Were looked for with great eagerness. Knowing these facts, the State Board took special pains to secure thoroughness and accuracy. Threshers' blanks, with full instructions, were sent to each township in the State, and have been returned from about *one thousand* different machines. For our September Report we sent out, August 5, blanks to 2,800 machines in all parts of the State, to be used for about five weeks, keeping a daily record of "acres" and "bushels" threshed in each job. September 20, the totals are to be footed and sent to us by our township correspondents. To show whether our returns have any

REAL VALUE AND ACCURACY,

We give the actual figures received, for example, from

Licking County.

Townships.	Acres.	Bushels.
Etna	539	7,927
Bennington	50	690
Newton	422	6,451
McKean	161	1,771
Liberty	149	1,953
Hanover	395	4,939
Granville	451	8,135
Bowling Green	352	4,100
Monroe	580	7,250
Hartford	139	2,266
Perry	213	2,080
Madison	400	6,200
Harrison	225	2,745
Hopewell	342	3,673
Jacksontown	1,036	17,614
Licking	3,458	61,884
Totals	8,912	139,678

Dividing the total bushels by the total acres threshed, we get 15.6 bushels as the *average yield per acre* of Licking county, as far as the threshing is reported. And when it is known, that the threshing reported is nearly *one-fifth* of the total product of the county, it will be seen that we have a very fair basis for a reliable estimate,—something very different from mere guess-work. The acreage for each county is the official number obtained through County Auditors. Of course not all counties are so fully reported, though several report about 100,000 bushels actually threshed, while one county (Pickaway) reports 169,580 bushels. But we have *some* actual returns from *every single county*, though a few counties only report from three or four townships. In such cases the basis of estimate is hardly sufficient, and the estimate for that particular county may need to be modified. But for the whole State we believe the figures are exceedingly near to the truth. The idea of

THRESHERS' BLANKS,

We believe, originated with our Board of Agriculture. We find the plan, as far as tried, the most feasible means for obtaining actual figures that shall be both *prompt enough* and *accurate enough* to be of real value to farmers and to the interests of business. We earnestly recommend the plan to other State Boards, and trust it will be generally adopted. We also trust the day is not distant, when the accurate statistics and estimates of our various State Boards shall be promptly reported by wire to the Department at Washington, to be condensed and reported to the country. This would relieve the National Department of the labor and expense of maintaining a smaller and necessarily less thorough and accurate corps of crop reporters in each State, and give the time and means for another most important work, thus far scarcely attempted, that of obtaining, through our consular and other foreign service, trustworthy information in regard to the condition of crops in the old world. We trust commissioner Loring, with his broad and comprehensive views of the needs of what may be called agricultural commerce, will give the matter earnest thought. Indeed, we understand from private sources, he has already begun to do so.

So far as can now be known, what is the

REAL SITUATION IN REGARD TO GRAIN?

In Ohio we have, by our present estimate, in round numbers, 38 million bushels of wheat. This should be compared with *our* estimate for 1880, viz.: 52½ millions, and not with that of the National Departmant, 37¾ millions, or with that of the Ohio Secretary of State, viz.: 48½ millions. The latter is of course more minute and careful than ours, but always allows more or less (in the minds of the farmers, who report to the tax assessors in May of the following year) for "seed and bread." So that, taking this into the account, it is really in most exact harmony with our estimate, made and published the previous fall, immediately after harvest. This gives the actual yield of Ohio this year, as only 72 per cent. of the crop of 1880. Now how does such a shortage affect the *amount to be sold.* Take the two States of Ohio and Illinois, which will fairly represent the condition of the Western wheat States, Ohio being above, and Illinois below the average. Secretary Fisher's latest report is for 22,000,000 bushels from Illinois. Remember, now, that four bushels for each inhabitant is required for seed and consumption, and we have

For 1880.

States.	Total spring and winter wheat.	Required for home use.	Surplus for sale.
Illinois	54,000,000	12,000,000	42,000,000
Ohio	52,500,000	12,000,000	40,500,000
Total surplus			82,500,000
For 1881.			
Illinois	22,000,000	12,000.000	10,000
Ohio	38,000,000	12,000,000	26,000
Total surplus			36,000

In other words, we have a good deal less than half as much wheat *to spare* from these two States as we had last year. And the same is probably true for the whole "winter wheat belt" of the country. It is now known, too, that the spring wheat crop will also be somewhat short, and that the foreign demand will probably be fairly an average one. The reports about Russia's having such immense crops, that "the farmers think they could dispense with harvests *for four years to come*", have an exaggerated and suspicious air that give them entire discredit. And the effect on the forein demand is not deemed to be alarming, when it is remembered that for three years past, the surplus of Russia has not been equal to the deficiency in France alone.

And so it is plain that the advance in prices of wheat, though largely speculative in its suddenness and feverishness, is legitimately based on a knowledge of the real facts, and is likely to be permanent even at a higher figure than $1.35. Money is plenty and seeking investment. Crops are short, business is active, and general prices are advancing. And if any one has a right to take the advantage of this firmness of prices in wheat, it is the men who have spent the whole year in raising the crop and who have *a greatly diminished number of bushels to sell.* And so the opinion of our July Report is still held, that it will be wise not to sell till the wheat is sweated and fairly ready for market, and the market has found its level as determined by actual threshers' yields for the whole West, including the northern spring wheat belt.

One fact is worthy of notice. Our May estimate on wheat was that the total yield would be 85 per cent. of the crop of 1880; the July estimate was 77 per cent.; the August estimate from three weeks' actual threshing is 72 per cent., and it seems to be generally believed that even this is too high, and that the full threshing will not show over 66 per cent. The crop has gone back slightly ever since May 1. Drought, Hessian fly, and extreme heat were the main causes. The heads did not fill so well as was expected for a moderately thin stand.

CORN IN OHIO.

The figures show (with average weather till September 5) probabilities for 74 million bushels of corn against 105 millions in 1881, or 70 per cent. In some sections the crop is nearly a failure, but in most of the heavy corn counties the yield is likely to be fair. The corn prospect, therefore, in Ohio, is not alarming.—[N. B. Since our correspondents reported, however, a very severe drought has begun, and if rain does not come soon the yield will quite likely be reduced to 50 per cent.]

OATS IN OHIO.

Oats are not a crop of heavy sale or of special export importance in this State. In most counties they are better than a year ago; in a few not so good. The average is 107 per cent. as compared with 1880, or a total of 22½ millions against 21 millions in 1880.

OTHER CROPS.

No tabular statement is made for other crops this month, though the facts from observation, and from notes of correspondents seem to be about as follows:

Hay is a heavy crop, probably 120 per cent. for the whole State.

Pastures, good on the average for the State and for most of the season, but very short at times, and for limited areas, owing to drought.

Potatoes, very short crop, owing chiefly, it is thought, to extreme and long continued heat. Probably not over 33 per cent. of a full crop.

Fruit, very light crop, except of grapes and pears, which will show moderate yield. Apples especially scarce. Even those that "set" have mostly fallen from the trees.

Wheat ground for 1882.—In most localities the ground is plowing up in fine, mellow condition, and where the roller or clod crusher or harrow are used immediately after the plow, to crumble and compact the soil, and retain the moisture, the chances for a good seeding are good.

Statistics.—The official Agricultural Statistics for 1880 are given as an appendix to this report. They have just been compiled in this office from returns made to County Auditors by township tax assessors.

Commercial Fertilizers.—In the tables referred to above (for 1880), will be found a column giving approximately the value of commercial fertilizers used in each county. It will be convenient for dealers in fertilizers.

In its proper place, also, will be found, a table giving statement of analysis and valuation of the various brands of goods licensed to be sold in the State.

Table showing by Counties the probable Yield of Wheat in 1881; the Estimates being based on Returns from actual yields, for first three weeks' threshing, by about 1,000 Threshing-machines.

Counties.	Wheat.		
	Acres, 1881.	Yield per acre.	No. of bushels.
Adams	19,519	7.2	140,537
Allen	40,060	12.2	488,732
Ashland	36,441	14.7	535,683
Ashtabula	19,652	13.6	267,267
Athens	19,054	8.2	156,243
Auglaize	36,590	13.9	508,601
Belmont	28,998	11.3	327,677
Brown	26,112	8.4	219,341
Butler	42,779	12.5	534,737
Carroll	18,088	15.6	282,173
Champaign	46,776	19.9	930,842
Clarke	44,095	16.7	736,387
Clermont	21,049	8.0	168,392
Clinton	39,567	12.3	476,674
Columbiana	24,340	14.0	340,760
Coshocton	40,628	9.2	373,778
Crawford	39,656	14.3	566,481
Cuyahoga	10,695	21.6	230,912
Darke	66,283	15.6	1,034,015
Defiance	29,618	15.4	456,117
Delaware	29,612	13.5	399,762
Erie	27,975	15.2	425,220
Fairfield	54,858	11.1	608,923
Fayette	37,919	8.7	328,885
Franklin	43,734	15.1	660,383
Fulton	30,582	11.8	360,868
Gallia	32,043	5.5	176,236
Geauga	7,710	15.4	118,734
Greene	51,211	10.9	558,200
Guernsey	22,833	7.9	180,381
Hamilton	7,361	13.4	98,637
Hancock	59,912	14.1	844,759
Hardin	43,645	12.7	554,291
Harrison	20,294	13.0	263,722
Henry	29,401	15.3	449,835
Highland	37,308	11.8	439,434
Hocking	13,920	7.5	104,400
Holmes	34,540	11.1	383,394
Huron	36,998	14.6	540,171
Jackson	11,383	6.0	68,298
Jefferson	19,061	15.6	197,352
Knox	38,696	11.1	429,536
Lake	8,465	13.7	115,970
Lawrence	18,735	4.7	87,054
Licking	46,298	15.6	722,249
Logan	43,517	15.7	684,217
Lorain	24,692	15.0	370,380
Lucas	17,529	14.3	250,665
Madison	31,979	16.1	513,862

TABLE SHOWING BY COUNTIES THE PROBABLE YIELD OF WHEAT, ETC.—Continued.

Counties.	Wheat.		
	Acres, 1881.	Yield per acre.	No. of bushels.
Mahoning	12,913	18.2	235,017
Marion	36,693	14.9	547,706
Medina	20,948	17.3	362,600
Meigs	23,591	7.	165,137
Mercer	25,236	15.3	386,111
Miami	46,775	19.2	898,080
Monroe	19,028	6.9	124,993
Montgomery	45,097	13.5	608,809
Morgan	22,653	10.5	237,856
Morrow	20,257	12.1	245,110
Muskingum	38,562	9.4	362,493
Noble	20,707	8.0	164,956
Ottawa	16,878	12.9	217,726
Paulding	15,126	13.6	205,714
Perry	24,066	11.1	267,133
Pickaway	61,015	11.8	719,977
Pike	13,665	8.9	121,618
Portage	22,011	18.5	407,203
Preble	39,950	14.1	563,295
Putnam	35,637	18.5	659,284
Richland	40,210	12.8	514,688
Ross	47,994	9.5	444,943
Sandusky	60,672	18.2	1,103,910
Scioto	9,876	8.1	79,996
Seneca	75,995	17.2	1,307,114
Shelby	40,648	16.0	650,348
Stark	53,979	17.1	923,050
Summit	31,258	16.3	509,505
Trumbull	13,091	15.1	197,674
Tuscarawas	40,884	13.9	568,288
Union	34,740	16.9	585,106
Van Wert	28,764	15.0	431,460
Vinton	11,121	6.0	66,726
Warren	30,325	12.3	372,997
Washington	36,987	7.5	277,402
Wayne	55,248	16.0	883,948
Williams	44,935	10.0	449,350
Wood	44,912	18.8	844,346
Wyandot	44,554	15.2	677,221
Totals	2,856,609	13.3	38,010,057

TABLE SHOWING BY COUNTIES THE PROBABLE YIELD OF OATS AND CORN IN 1881, BASED ON ESTIMATES BY ABOUT 1,000 TOWNSHIP CORRESPONDENTS, RETURNED AUGUST 8 TO 15.

Counties.	Oats.			Corn.		
	No. of bushels, 1880.	Per cent. of yield, 1881.	Estimated No. of bushels, 1881.	No. of bushels, 1880.	Per cent. of yield, 1881.	Present probabilities for yield—bushels, 1881.
Adams	45,183	1.09	109,249	809,688	.70	566,782
Allen	205,942	.89	183,237	1,367,753	.72	984,782
Ashland	500,182	1.16	586,211	922,447	.86	783,304
Ashtabula	591,948	1.12	662,972	474,695	.69	327,439
Athens	22,247	.51	11,346	578,856	.60	347,314
Auglaize	238,476	1.00	238,476	1,140,950	.78	901,341
Belmont	270,934	1.02	276,353	1,161,818	.80	929,454
Brown	118,739	1.02	121,114	1,064,357	.67	713,119
Butler	144,387	1.01	149,831	2.358,833	.78	1,839,910
Carroll	339,621	1.21	406,941	546,010	.85	464,108
Champaign	133,905	.90	120,514	2,143,090	.72	1,542,925
Clarke	101,434	1.02	103,463	1,962,359	.65	1,275,533
Clermont	177,484	1.12	198,782	1,091,694	.80	873,355
Clinton	87,096	.78	51,735	2,234,255	.61	1,362,897
Columbiana	556,382	1.04	578,637	696,569	.74	515,661
Coshocton	174,809	1.06	191,297	1,262,397	.92	1,161,405
Crawford	530,011	1.21	535,311	1,167,395	.72	840,524
Cuyahoga	455,964	.94	418,605	404,656	.65	263,026
Darke	466,288	.85	396,344	2,730,661	.73	1,993,483
Defiance	274,828	.87	239,100	693,682	.65	630,893
Delaware	111,878	.51	57,068	1,650,974	.62	1,023.500
Erie	278.138	1.19	330,982	605,213	.66	399,440
Fairfield	52,359	.77	40,314	2,377,147	.60	1,426,288
Fayette	25,123	1.20	30,147	2,684,508	.62	1,664,391
Franklin	60,625	.72	43,650	2,743,219	.58	1,591,067
Fulton	363,930	1.05	382,126	781,676	1.02	797,309
Gallia	34,254	.34	11,646	616,866	.30	185,059
Geauga	282,909	1.22	345,148	243,789	.68	165,776
Greene	80,656	1.25	100,820	2,283,998	.65	1,484,599
Guernsey	130,097	1.23	160,019	847,219	.80	677,775
Hamilton	92,769	.84	77,926	975,276	.49	477,885
Hancock	240,356	.94	225,924	1,857,830	.70	1,300,481
Hardin	163,456	.98	160,186	1,388,383	.78	1,082,931
Harrison	144,815	1.13	163,641	653,671	.81	529,473
Henry	188,129	1.12	210,704	1,077,607	.77	729,757
Highland	81,459	.60	48,875	1,767,671	.62	1,095,956
Hocking	21.920	.60	13,152	439,454	.75	329,590
Holmes	448,054	.77	345,002	813,485	.91	740,271
Huron	637,450	1.39	886,055	1,048,749	.71	744,541
Jackson	43,545	.75	32,659	417,930	.47	196,427
Jefferson	260,204	.93	241,990	612,443	.72	440,958
Knox	232,642	1.26	293,129	1,416,409	.78	1,104,799
Lake	177.951	1.05	186,849	232,236	.61	141,663
Lawrence	43,616	.57	24,861	490,284	.75	367,713
Licking	154,991	.96	148,791	2,029,527	.72	1,461,259
Logan	91,374	.75	68,530	1,457,088	.63	917,965
Lorain	517,989	1.20	621,467	707,923	.74	523,863
Lucas	189,260	.91	172,227	623,225	.80	498,570

TABLE SHOWING BY COUNTIES THE PROBABLE YIELD OF OATS, ETC.—Continued.

Counties.	Oats.			Corn.		
	No. of bushels, 1880.	Per cent. of yield, 1881.	Estimated No. of bushels, 1881.	No. of bushels, 1880.	Per cent. of yield, 1881.	Present probabilities for yield—bushels, 1881.
Madison	34,710	1.07	37,140	2,609,045	.78	2,035,055
Mahoning	419,154	.92	384,722	467,844	.67	313,465
Marion	272,568	.99	245,311	1,789,925	.69	1,235,048
Medina	500,445	1.19	596,819	559,475	.74	414,011
Meigs	43,347	.60	26,008	514,137	.50	257,068
Mercer	349,423	.94	328,447	1,090,959	.81	883,677
Miami	302,759	.86	260,363	2,251,701	.67	1,508,640
Monroe	139,274	1.00	139,274	626,228	.65	407,048
Montgomery	334,231	1.10	367,654	1,792,490	.69	1,237,818
Morgan	40,510	.78	315,978	619,058	.73	451,912
Morrow	410,426	1.05	430,947	1,204,943	.70	843,460
Muskingum	103,675	.87	90,197	1,371,360	.73	1,000,092
Noble	79,139	1.05	83,096	757,486	.62	469,641
Ottawa	97,289	1.25	121,611	533,234	.75	399,925
Paulding	56,745	.88	49,936	322,010	.90	289,809
Perry	35,938	.73	26,235	685,778	.59	413,609
Pickaway	9,990	.68	6,793	3,373,630	.67	2,260,932
Pike	46,106	.67	30,891	803,928	.68	546,671
Portage	429,735	1.27	545,773	450,822	.71	320,084
Preble	297,169	1.12	332,829	1,782,293	.68	1,211.959
Putnam	77,757	.64	49,764	1,539,434	.68	1,046,815
Richland	650,477	1.10	715,525	1,030,782	.77	793,702
Ross	26,363	.54	14,182	2,696,685	.45	1,213,508
Sandusky	285,812	.95	271,521	1,210,129	.81	980,204
Scioto	54,183	.75	40,637	711,284	.65	462,335
Seneca	466,911	1.05	490,256	1,408,045	.73	1,027,873
Shelby	348,354	.85	297,101	1,250,500	.57	712,785
Stark	827,638	1.13	935,231	1,054,292	.80	843,433
Summit	472,431	1.25	590,539	625,599	.71	444,175
Trumbull	480,443	1.18	566,922	451,233	.74	333,912
Tuscarawas	412,872	1.25	516,090	907,594	.85	771,455
Union	92,613	.95	87,892	1,664,943	.78	1,298,655
Van Wert	169,557	.91	154,297	1,095,248	.88	963,718
Vinton	23,244	.45	10,460	345,298	.45	155,384
Warren	175,717	.67	117,730	1,926,570	.63	1,213,739
Washington	111,813	1.00	111,813	726,520	.67	486,768
Wayne	734,459	1.27	932,763	1,200,098	.92	1,104,890
Williams	502,661	1.22	613,246	978,160	1.00	978,160
Wood	411,976	.99	370,778	1,974,517	.73	1,441,397
Wyandot	200,857	1.06	202,908	1,355,284	.69	935,046
Totals	21,091,606	1.07	22,513,085	105,414,594	.70	74,125,439

THE FERTILIZER LAW.

On the second and third pages of the cover is given once more the full text of the fertilizer law. Its design is to prevent, or expose and punish fraud in the manufacture and sale of Commercial Fertilizers. And, so far as this office is concerned, the law will be faithfully enforced. But it will be seen that the law does not (and perhaps could not) require that any given fertilizer shall be worth all it sells for. It simply requires that each package sold shall have on it a plainly printed certificate, stating the number of net pounds, and the per cent. of certain valuable chemical ingredients it contains, and prescribes a heavy penalty for attaching a false or fraudulent analysis. The law requires the Secretary of the Board of Agriculture to analyze *at least one sample* of each kind of fertilizer sold in the State (for over $10 per ton), and ascertain whether it contains the quantities (per centages) of these valuable elements it claims to contain.

The samples, whose analyses are given on pages — and —, were nearly all drawn by the Secretary, and the rest by reliable and disinterested parties, and the fairness of the sampling was certified in all cases by oath or affirmation before a magistrate. The samples were *in all cases*, and for obvious reasons, taken from goods offered for sale in open market, or from common stock in the manufacturers' warehouses; and always without previous notice of the time the sampling was to occur. This shows that the goods analyzed are, in all probability, a fair sample of what the farmers actually buy.

The necessity for the law is apparent from a moment's reflection. The entire commercial *and agricultural* value of the commercial fertilizers, now sold in Ohio under the law, depends on three invisible elements they contain, viz.: *nitrogen*, (usually given in its equivalent of *ammonia*), *phosphoric acid* and *potash.*

It is absolutely impossible for the purchaser to tell how much of any one of these elements any brand of goods contains, without a chemical analysis, which would cost from $15 to $25. And to buy such goods without a certified analysis with suitable penalties prescribed in case of fraud, and the means of detecting fraud, would be like buying illuminating gas without a gasometer to measure it, or coal or wheat without either seeing it or having it weighed, and its weight certified. The chances for fraud are too tempting. And to offer real protection to purchasers the valuations of the goods offered should be made by some competent and disinterested authority, on some generally adopted and fair scale of prices, and the results published far and wide.

Nitrogen is usually given in its equivalent value of ammonia, and the *commercial* values usually set by Agricultural Chemists, are about as follows:

Ammonia, per pound	17½	cents.
Insoluble phosphoric acid, in fine-ground bone, per pound	6	"
" from phosphoric rock, per pound	4	"
Soluble or reverted phosphoric acid (in superphosphates), per lb	10	"
Potash. per pound	6	"

These are the valuations used by the Pennsylvania Board of Agriculture for superphosphates and *fine-ground* bone meal, and are reasonably fair in Ohio, both commercially and agriculturally. Commercially, however, the soluble phosphoric acid would have to be rated at considérably more than ten cents per pound to make the superphosphates sold in the State, average as near the selling price in valuation, as the bone meals do.

Our State Board has, for this year, adopted this scale of prices in making valuations, and so few of the brands were known to contain phosphatic rock, or bore any indications of it, that no special chemical analysis was made to ascertain this point.

With these values every farmer should become familiar, and be able to figure out for himself the approximate commercial value claimed in the printed analysis on each barrel or sack. Of course, 4 *per cent.* (of ammonia for example), simply means 4 *per cwt.*, or that the goods contain 4 pounds of ammonia to every hundred pounds, and 20 times 4 or 80 pounds to every ton. Following these remarks are simple computations of the values of the goods analyzed since the July Report was issued. They serve to show the form of computation.

Every buyer should become familiar with the subject, and know about what pure bone should contain, and about what really good superphosphate should have. By examining the table that follows these remarks and the computations, it will be seen that pure bone should contain from 4 to 5 per cent. of ammonia, and from 20 to 25 per cent. of phosphoric acid. (The buyer should see that the analysis states *phosphoric acid*, and not "bone phosphate", and states "*potash*", and not simply "*sulphate*" or *sulph. of potash.* The latter, in both cases, may be said in popular language to be *diluted forms,*—milk and water, a little more than half water.) Again it will be seen by the table that really high-value superphosphates contain from 3 to 4 per cent. of ammonia, and from 7 to 10 per cent. of soluble and reverted ("available") phosphoric acid. If the ammonia runs lower than 3 per cent. it should be made up with potash or a larger per cent. of phosphoric acid.

It is usually believed that our Ohio soils, especially our clay soils, do not specially need potash, and it will be observed that most of the brands in the table do not contain that element at all. It will also be found, that manufacturers have poor opinion of any element their goods do not contain, or do contain in very small quantities. The men who have no *soluble* phosphoric acid in their goods, don't believe in soluble phosphoric acid. The men who have little ammonia don't believe in ammonia, and so on. But when it is remembered that the universal natural manure, viz.: the dung and urine of domestic animals contains *all three* of these valuable elements in nearly equal amounts and in available forms, it will be seen that it will not do to disregard either. And yet it is doubtless true as intimated above, that potash is less needed than either ammonia or phosphoric acid, on most Ohio soils for most of our crops.

Our valuations we believe to be fair as between the different brands of bone meal, and as between the different brands of superphosphate; though a variation of a dollar a ton or so, might be accounted for by variation in samples, and lack of uniformity in goods. For example, Nos. 1 and 12, and Nos. 9 and 32, respectively, are samples of only two brands of goods, and yet they vary more than a dollar. And strictly pure ground bone may vary fully as much, according to the freshness or age of the bones used. So that no single set of analyses or valuations could be conclusive to a single dollar or half dollar between rival brands of goods. Beyond that range the probabilities are that repeated analyses would not reverse the relative valuations. It is not a lack of accuracy in chemical processes and results, but a lack of uniformity in goods. Our chemist, Prof. Lord, has several times *repeated* the analysis of *a given sample* with scarcely the variation of the hundredth part of one per cent.

But the question of the relative value of superphosphates and of untreated bone meal is one on which more light must be thrown, both by chemical research, and by careful experimentation in various soils and under varied circumstances. Just how phosphoric acid, rendered soluble or immediately available as plant-food by the use of sulphuric acid,—just how this compares in commercial or in agricultural value with the untreated phosphoric acid of fine-ground raw bone, is a question that demands further research. The comparative commercial value (or rather the real cost) could be found by adding the actual cost of rendering it soluble to the cost in untreated bone. But the comparative agricultural value can only be ascertained, as before remarked, by long and careful experimentation. Chemical science can help solve the question if it can show how long it takes the *soil water* and the growing crops to dissolve the fine-ground untreated bone, and make the phosphoric acid it contains available as plant-food. The general opinion of agricultural chemists is, that it is gradually dissolved, and may be all or nearly all assimilated in the course of three years or so. If this is true, then it would seem that when we buy superphosphates (at present comparative prices), we pay a very high discount for the present immediate return of our investment; for the bone meals, on the average, not only contain nearly twice as much phosphoric acid as the superphosphates, but considerably more ammonia. Still, sometimes, especially on poor soils, the quick action of the superphosphates seems to be needed to give the wheat that vigorous growth, that shall carry it safely through the winter. Under some circumstances one dinner may be worth more to-day than two to-morrow.

Again, it is still an open question, how the untreated and unliberated nitrogen in raw bone or in dried blood or flesh, or offal, compares with that in superphosphates in the form of ammonia salts or in other forms.

This whole question is receiving the earnest study and careful experimentation of a large body of agricultural chemists, and by another year they may throw more light on the subject. Meantime, a far larger body of careful farmers are also experimenting, and will be sure hereafter to put their money where it will, on the whole, bring the largest returns.

One fact is worthy of note; there are thus far no proofs of intentional fraud revealed by the analyses. They show the goods to be fairly up, on the average, *to the claims made.* Not necessarily, however, in price, for with that the law has nothing to do directly. It simply requires the manufacturer to say on every package *just what ingredients* and *how much of each* he is selling. The purchaser should know the value of those ingredients and judge whether the price is fair. And it is quite worth while for some one to affix values. For example, the table, pages 367 and 368, shows that one brand of goods sells for nearly five times its value, while several other brands sell for *considerably less* than their value as determined *by exactly the same scale of prices.* It is not, perhaps, extravagant to say, that the knowledge of such facts is worth something to the farmers of Ohio. And just such knowledge, the fertilizer law makes it the duty of the State Board of Agriculture, through its Secretary, to give to the farmers.

The table, pages 367 and 368. gives the names of all brands of goods that have thus far complied with the law. No other brands can lawfully be sold in the State, at this date, August 25. The last six brands in the table have not yet been analyzed, but will be, in time to report in the September Crop Report. The following are the computations made on brands analyzed since the July Crop Report was published.

No. 35. *Ammoniated Bone Superphosphate—Thompson & Edwards, Chicago, Illinois.*

	Per cent.	Per ton.	
Ammonia	= 1.70	34. lbs. @ 17½ c.,	$5 95
Soluble and reverted phosphoric acid	= 6.30	136. lbs. @ 10 c.,	13 60
Insoluble phosphoric acid	= 7.64	152.8 lbs. @ 6 c.,	9 16
Estimated value, per ton			$28 71
†Selling price, per ton			37 00

No. 36. *Dissolved Bone Meal—Thompson & Edwards, Chicago, Ill.*

	Per cent.	Per ton.	
Ammonia	= 3.82	76.4 lbs. @ 17½ c.,	$13 37
Soluble and reverted phosphoric acid	= 0.92	18.4 lbs. @ 10 c.,	1 84
Insoluble phosphoric acid	= 14.52	290.4 lbs. @ 6 c.,	17 42
Estimated value, per ton			$32 63
†Selling price, per ton			36 00

No. 37. *Pure Ground Bone—L. L. Crocker, Buffalo, N. Y.*

	Per cent.	Per ton.	
Ammonia	= 4.84	96.8 lbs. @ 17½ c.,	$17 94
Soluble and reverted phosphoric acid	= 1.55	31.0 lbs. @ 10 c.,	3 10
Insoluble phosphoric acid	= 21.83	436.6 lbs. @ 6 c.,	26 20
Estimated value, per ton			$47 24
†Selling price, per ton			40 00

No. 38. *Standard Superphosphate of Lime—Lister Bros.. Newark, N. J.*

	Per cent.	Per ton.	
Ammonia	= 3.14	62.8 lbs. @ 17½ c.,	$10 99
Soluble and reverted phosphoric acid	= 9.26	185.2 lbs. @ 10 c.,	18 52
Insoluble phosphoric acid	= 2.70	54.0 lbs. @ 6 c.,	3 24
Potash	= 2.41	48.2 lbs. @ 6 c.,	2 89
Estimated value, per ton			$35 64
†Selling price, per ton			40 00

No. 39. *Homestead Superphosphate—Michigan Carbon Works, Detroit, Mich.*

	Per cent.	Per ton.	
Ammonia	= 2.94	58.8 lbs. @ 17½ c.,	$10 29
Soluble and reverted phosphoric acid	= 7.49	149.8 lbs. @ 10 c.,	14 98
Insoluble phosphoric acid	= 3.00	60. lbs. @ 6 c.,	3 60
Potash	= 0.96	19.2 lbs. @ 6 c.,	1 15
Estimated value, per ton			$30 02
†Selling price, per ton			36 00

No. 44. *Sea Fowl Guano—Bradley Fertilizer Co., Boston, Mass.*

	Per cent.	Per ton.	
Ammonia	= 3.48	69.6 lbs. @ 17½ c.,	$12 18
Soluble and reverted phosphoric acid	= 6.33	126.6 lbs. @ 10 c.,	12 66
Insoluble phosphoric acid	= 5.47	109.4 lbs. @ 6 c.,	6 56
Potash	= 1.91	38.2 lbs. @ 6 c.,	2 29
Estimated value, per ton			$33 69
†Selling price, per ton			40 00

Nos. 41, 42, 43, 45 and 46 Prof. Lord has not yet been able to analyze. The analyses claimed by the manufacturers are given in the table, but no valuations are given.

Special Note.—By a misplacement of figures on page 32 of the July Report, injustice was done the goods of the Michigan Carbon Works, Nos. 39 and 40. The valuations there given, *based* on the *highest* and *the lowest claims* of *the manufacturers*, should have been as follows:

	Highest claim.		Lowest claim.
No. 39	$36 45	and	$27 75
Instead of	27 62	and	22 42
No. 40	43 63	and	36 05
Instead of	36 45	and	27 75

We regret the mistake exceedingly, and hence make this prominent correction. This August Report gives the official analysis of No. 39, but not of No. 40, as we were unable to sample it in Ohio in time.

The September Crop Report, issued about October 1, will give further analyses.

TABULATED ANALYSES OF FERTILIZERS.

By Prof. Nat. W. Lord, *Chemist of the Ohio State Board of Agriculture.*

From samples furnished by the Secretary of the Board, and selected in accordance with the Act of March 16, 1881. *The Analyses are by Prof. Lord; the Tabulation and valuations by the Secretary.*

Record Number.	Name of Fertilizer.	Name and Address of Manufacturer.	Where and When Selected.	INGREDIENTS—PER CENT.				Selling price per ton.	Estimated value per ton.‡	Record Number.
				Ammonia.	Soluble and Reverted Phosphoric Acid.	Total Phosphoric Acid.	Potash.			
1	Buckeye Super-phosphate	Cleveland Dryer Co., Cleveland, O.	Bellaire, O., April 28	3.04	5.53	8.76	....	†$35 00	$25 57	1
2	Pure Fine Raw Ground Bone	W. D. McLaughlin, Steubenville, O.	Steubenville, April 28	4.38	1.21	21.43	....	†45 00	42 01	2
3	Premium Ground Bone	Excelsior Fertilizer Works, Salem, O.	Salem, O., May 3	4.69	1.49	21.59	....	†45 00	43 51	3
4	Schilling's Original Pure Premium Bone	Excelsior Fertilizer Works, Alliance, O.	Alliance, O., May 3	4.57	1.45	20.66	....	†45 00	41 94	4
5	Pure Bone Dust	J. C. Stockberger, Canton, O	Canton, O., May 3	5.08	1.47	22.26	....	*40 00	45 67	5
6	Bone Phosphate	“ “ “	“ “	7.15	0.89	14.10	....	*38 00	42 65	6
7	Excelsior Super-phosphate	Lake Erie Dryer Co., Cleveland, O.	Cleveland, O., May 4	4.23	3.84	4.56	....	†35 00	23 34	7
8	Pure Ground Bone	S. H. Morgan & Co., Toledo, O.	Toledo, O., May 3	4.30	1.40	22.45	....	†40 00	43 11	8
9	Bone Phosphate	C. Abendscham, Marietta, O.	Marietta, O.	1.36	0.89	12.38	....	*30 00	20 33	9
10	Champion Fertilizer	Newburg Fertilizer Co., Newburg, O.	Newburg, O., May 27	8.50	0.83	9.11	....	*38 00	41 35	10
11	Pure Bone Dust	“ “ “	“ “	5.03	1.33	24.27	....	*40 00	47 79	11
12	Buckeye Super-phosphate	Cleveland Dryer Co., Cleveland, O.	Cleveland, O., May 27	2.46	5.49	8.79	....	†35 00	23 55	12
13	Square Bone	“ “ “	“ “	1.45	0.58	20.76	....	†38 00	30 45	13
14	Forest City Bone Super-phosphate	“ “ “	“ “	4.08	7.93	13.17	....	†38 00	36 52	14
15	Packing House Fertilizer	Cleveland Provision Co., Cleveland, O.	“ “	8.55	0.83	13.50	....	*35 00	46 78	15
16	Pure Bone	Hill Bros. & Thompson, Cleveland, O.	“ “	4.50	0.89	23.59	....	*40 00	43 57	16
17	Fine Pure Raw Bone	North-Western Fert'zer Co., Chicago, Ill.	Chicago, Ills., May 27	4.25	0.86	23.80	....	†42 00	44 21	17
18	Ammoniated Dissolved Bone	“ “ “	“ “	1.70	6.27	12.15	....	†38 00	25 55	18
19	National Bone	“ “ “	“ “	2.80	6.71	8.05	....	†37 00	24 83	19
20	Garden City Super-phosphate	“ “ “	“ “	2.63	5.02	10.11	1.92	†38 00	‖27 65	20
21	Pittsburgh Pure Ground Bone	W. A. Hoevler & Co., Pittsburgh, Pa.	Allegheny, Pa., June 10	4.67	0.86	19.64	....	*40 00	40 59	21
22	U. S. Super-phosphate	Lister Brothers, Newark, N. J.	Wellington, O., June 9	1.61	5.56	7.54	3.17	*32 00	‖23 17	22
23	Ammoniated Dissolved Bone Super-phosphate	“ “ “	“ “	2.46	8.12	11.31	1.78	*34 00	‖30 82	23
24	Pure Ground Bone	McCollum, Poto & Co., Limaville, O.	Dayton, O., June 10	5.10	1.50	22.67	....	*40 00	46 25	24
25	Raw Bone Super-phospate of Lime	Geo. E. Currie & Co., Cincinnati, O.	Cincinnati, June 11	4.76	2.85	19.92	....	*36 00	42 84	25
26	**Raw Bone Meal**	“ “ “	“ “	4.87	1.11	20.37	....	*34 00	42 37	26

TABULATED ANALYSES OF FERTILIZERS—Continued.

Record Number.	Name of Fertilizer.	Name and Address of Manufacturer.	Where and When Selected.	INGREDIENTS—PER CENT.				Selling price per ton.	Estimated value per ton.‡	Record Number
				Ammonia.	Soluble and Reverted Phosphoric acid.	Total Phosphoric Acid.	Potash.			
27	Flour of Bone	Geo. E. Currie & Co., Cincinnati, O	Cincinnati, June 11	4.82	0.	22.54	...	*34 00	43 92	27
28	Valley Fertilizer	John V. Nicolai, Cincinnati, O	" "	0.51	0.12	0.83	1.96	*25 00	‖5 22	28
29	Ammoniated Ground Bone	Central Chem. & Mfg. Co., Cincinnati, O	" "	3.11	1.34	27.78	...	*34 00	45 28	29
30	Ammoniated Super-phosphate of Lime	Amor, Smith & Co., Cincinnati, O	" "	4.98	4.66	17.48	...	*33 00	42 13	30
31	Ammoniated Bone Meal	" " "	" "	4.42	1.53	19.96	...	*32 00	40 65	31
32	Bone Phosphate	C. Abendscham, Marietta, O	Marietta, O., June 23	2.43	0.41	11.83	...	*30 00	23 02	32
33	Pure Ground Bone	" " "	" "	3.45	0.57	20.60	...	*34 00	37 24	33
34	Ammoniated Bone Super-phosphate	L. L. Crocker, Buffalo, N. Y	Malta, O, June 12	4.19	5.77	11.92	1.32	†38 00	‖35 17	34
35	Ammoniated Bone Super phosphate	Thompson & Edwards, Chicago, Ill	Mentor, O., June 26	1,70	6.30	13.94	...	†37 00	28 71	35
36	Dissolved Bone Meal	" "	Painesville, O., June 26	3.82	0.92	15.44	...	†36 00	32 63	36
37	Pure Ground Bone	L. L. Crocker, Buffalo, N. Y	Twinsburg, O., Aug. 1	4.84	1.55	23.38	...	†40 00	47 24	37
38	Standard Super-phosphate of Lime	Lister Bros., Newark, N. J	Cleveland, O., Aug. 1	3.14	9.26	11.97	2.41	†40 00	35 64	38
39	Homestead Super-phosphate	Michigan Carbon Works, Detroit, Mich	Painesville, O., June 26	2.94	7.49	10.49	0.96	†36 00	30 02	39
44	Sea Fowl Guano	Bradley Fertilizer Co., Boston, Mass	" "	3.48	6.33	11.80	1.91	†40 00	33 69	44
	The following brands have	not yet been analyzed.								
				Claimed	Claimed.	Claimed.	Claimed.			
40	Homestead Tobacco Grower	Michigan Carbon Works, Detroit, Mich	Barnesville, O., Aug. 16	3.50to4.75	8 to 9	10 to 13	6.50 to 7.50	...	...	40
41	Pure Bone Meal	J. W. Spangenberg, Warren, O	Warren, O., Aug. 13	2 to 4	10 to 12	20 to 25	...	...	...	41
42	T. and P. Super-phosphate	Waring Fertilizer Co., Colora, Md	Not yet sampled	...	11 to 13	11 to 13	...	...	...	42
43	Q. and L. Super-phosphate	" " "	"	0.5	10 to 12	10 to 12	2 to 3	...	...	43
45	Pure Bone Meal	Thompson & Edwards, Chicago, Ill	"	...	...	...	...	...	...	45
46	"Champion"	E. Rauh & Sons, Indianapolis, Ind	"	3 to 4	...	10	2 to 3	...	...	46

NOTE.—The Secretary endeavored, as far as possible, to ascertain the average price the farmers actually pay per ton to local agents. Where this was impossible, the price was given at factory or warehouse of manufacturer. The star or dagger indicates the difference above. The price at local agencies is considerably higher, probably, than at the factory.

* Price per single ton at factory or company's warehouse—loaded on cars.

† Price per single ton at local agencies, freight included.

‡ Ammonia is rated at 17½ cents per pound, soluble and reverted phosphoric acid at 10 cents, insoluble phosphoric acid at 6 cents, and potash at 6 cents.

‖ The potash determinations were not made for these numbers in time for the July Report, and the valuations there given were on the potash claimed by the manufacturers. The valuations have been here corrected to accord with the potash found by official analysis.

LECTURES DELIVERED AT VARIOUS FARMERS INSTITUTES; WINTER OF 1880–81.

ON CERTAIN RELATIONS BETWEEN GEOLOGY AND SANITARY SCIENCE.

By Professor Edward Orton, *Columbus, Ohio.*

I ask your attention to a brief discussion of one of the points of connection between Geology and Sanitary Science—that noble application of Natural Knowledge to the relief of man's estate, which our own age may be said to have produced. The connection to which I refer is found in the *natural water-supply of the country.*

It is obvious that this subject comes within the range of geology. Water descending through the air as rain, dew, or snow, or existing in the air as invisible vapor, or in clouds,—those wandering cisterns of the sky,—is referred to the domain of meteorology; but even here a more thorough examination shows us that its aerial distribution and state are dependent upon geological facts, and justify its reference from a broader view to geological science. But it becomes the undivided and undisputed subject of this science from the moment that it falls upon the surface of the earth, whether gathered into lakes and seas, whether flowing in rivulets and rivers, whether descending through soil and strata to feed the roots of growing plants, to form the springs that run among the hills, or sinking deeper still, toward the earth's glowing foundations, to take part in earthquake shock or volcanic eruption. In all of these relations and offices, it does not merely make a contribution to geology—it rather constitutes geology.

Geology has a vital interest in every step of its progress, and in every moment of its activity. As surface water, it chisels out the valleys, small and great, by which the relief of the land is produced, or if carried below the surface it dissolves and re-dissolves the various mineral compounds that lie along its path, honey-combing the solid rock with crevices and caverns; supplying to the living creation of to-day the identical atoms by which its prototypes grew in the morning of the world, or filling the rents and chasms of the rocks with metallic wealth. Where the water shall go, whether by surface-drainage to the sea, or beneath the surface to issue in springs or be lost in subterranean recesses, what it shall *do* in the way of solution or mechanical action, all these questions are, as I have said, not so much the problems of geology as geology itself.

Upon the other hand, sanitary science gives to water an equally important place. Among the indispensable conditions of human health, three factors stand out prominently: *pure water*, *pure air*, and *nutritious food.*

As a necessity of his organization, in every stage of his advancement, man has always counted water-supply second only, and scarcely second to a supply of food.

Genesis fixes the location of man's first home at the head-springs of a river; that it was by river or spring we might on general grounds be sure. The value that men set on this supply is shown by a bit of oft recurring human experience, fossilized in a word of every-day use, namely, *rivals.* *Rivals* were men who dwelt on opposite banks of the same *rivus* or *rivulet;* they always quarreled over its ownership. There are to-day no more stubbornly-contested cases in our courts than those that relate to water privileges. No wonder that we set so high a value on the water that we drink—for of the 150 pounds avoirdupois, that constitute an average man, 116 pounds are water. If the character of the supply is good, there is life and health in every draught; if its hidden sources are poisoned and polluted, it spreads pestilence and death along its course, or, worse than this, if it has dissolved and holds in solution too large an amount of the mineral substances through which it flows, it transforms those who drink it into dwarfed and hideous idiots.

There is this difference in the interest with which the two sciences regard the waters of the globe.

Geology is interested in the whole supply and in all of its agencies and effects. Sanitary science is principally concerned with that portion of the supply to which man resorts to quench his thirst; its interest is mainly limited to water-courses great and small, with the lakes through which they flow; to springs and fountains; to the veins and sheets of water which, though buried beneath the surface, are still accessible to man, and from which he draws his daily supply.

But even though the common interest of the two sciences on this subject is granted, some one may ask, "What advantage can Geology render to Sanitary Science?" Sanitary Science is of all things practical, engrossed with useful applications, intent on a homely end. Of what use can the teaching of geology with its far-fetched and fine-spun theories be, to such a science and on such a topic? I answer, much every way. Geology has her theories, grand and far-reaching. She essays to answer almost all of the questions which the Lord put to Job out of the whirlwind, but she has also a practical side.

She does not shrink from the humblest details. The facts that she acquires for other purposes and of which she makes other applications, have the most intimate and important connection with the water-supply upon which man depends; and the application of sanitary science to this vital point is simply impossible, without the possession of the very knowledge which it is the business of geology to acquire.

Our water-supply is derived from the rain-fall. I will not ask how the water found its way into the air; all that our present purposes require, is that we clearly recognize the fact that fountain, river and lake are alike fed from the clouds, and that man is wholly dependent for his supply of this vital element on the rain that comes down from heaven. He may dwell on plains as arid as the mountains of Gilboa, but he drinks from the stream that flows past his feet, which itself is fed by floods that fell a thousand miles away; and whatever mystery attaches to subterranean waters, we may be sure that by a long enough circuit we can trace every drop back to the clouds. The rain that falls upon the face of the earth has various fortunes; a part of it—storm-water—washes the surface, carries away from it in suspension many of its finely divided particles, dissolves what it finds easily soluble along its path, is gathered into open drainage channels, and, forming part of some river system, hastens to the sea. It touches geological problems at every step of its way. From the sandstone and conglomerate hills of Western Pennsylvania and New York, the soft water of the Ohio is derived. If the descending rains find nothing but granite ledges and the thin soils derived from them, the streams into which they are gathered become the standard of comparison for all natural waters containing, as in the Swedish River, Loka, but one-twentieth of a grain of foreign matter to the gallon; but a very considerable portion of the rain-fall enters the earth, and is lost for a time from sight. Can we follow it in its underground courses? Yes. Geology becomes a light to our feet and a lamp to our path as we trace the slowly descending sheet. The soil, most valuable of all geological formations, made up of crushed and weathered fragments of the rocky crust, first receives it. It sinks rapidly through this thin and porous covering, through whatever porous beds lie beneath it, until it is arrested and turned outward by an impervious layer. This layer may be found at a depth of one foot or one thousand feet below the surface, and the porous beds that intervene between it and the surface may exhaust the whole category of geological formations; they may consist of sand, gravel or gravelly clay, of shale, sandstone, limestone, or granite.

So also a considerable variety of composition is represented in the impervious beds; a layer of clay is the most common water-bearer, but seams of shale, or tables of limestone or of granite, answer the same purposes in a thousand instances.

It is not composition alone that determines this point; beds that are naturally altogether impervious, may allow a free transmission of water through them, by reason of the accidents of their geological history to which they owe the fractures and joints that now divide them. But note—the water that emerges in the spring is never identical in character with that which fell in rain. It is not without results that it has been wandering for days or even weeks and months through the strata. When it fell from the clouds, it was not absolutely pure water; it had washed from the air the germs of animal and vegetable life, it had absorbed in its descent the various gases that enter into the composition of the atmosphere, and by them had been indued with new power for its subterranean tasks. Rain-water is a universal solvent. Some substances it dissolves very slowly, so slowly, that we say in ordinary language, it does not dissolve them at all. Of the so-called insoluble compounds, silica, the most abundant of the substances that compose the earth's crust, is chief; wherever highly silicious beds receive the rain-fall—either as unconsolidated sand, or as sandstone or granite rocks—the water that flows through them is least affected by its stay underground; and more than this, as silica, when dissolved, is a harmless impurity, and as its finely divided but porous beds constitute a natural filter by which all forms of suspended matter are removed, the water obtained from these beds has the highest character of all natural supplies.

The springs that issue from the mountain glen, which become to every one who has ever stooped to drink of their cold and crystal waters unapproachable standards of excellence, have very often such a history. But among the substances which the slowly sinking sheet of water traverses, there are many of a much greater degree of solubility: the compounds of soda and potassa, of magnesia and lime, of phosphorus, and sulphur, and iron, are taken up in various but comparatively large amounts. Lime and magnesia are most common and abundant of all. Contrary to a commonly received opinion, absolutely pure water does not seem so conducive to life and health as water containing a certain proportion of these salts. The proportion, however, must be definitely limited; the presence of six, eight, or ten grains of the salts of lime to the gallon is counted by high authorities as a definite advantage in several respects. A higher limit was fixed by the Sanitary Congress that met at Brussels, at thirty-five grains to the gallon. Water containing more inorganic matter than this, is to be counted unfit for use as drinking water. The presence of an excessive amount of lime and magnesia in spring-water has been quite definitely connected with goitre, and thus with cretinism. There are not facts enough accumulated to make the induction safe and strong, but it is hard to resist the conviction that the water supply is, at least in part, a cause of this first-named deformity. When the water dissolves any notable quantity of other substances than the strata may chance to contain, such, especially, as compounds of potash, soda, iron, and sulphur, the emerging springs are termed mineral springs, and account is made of them for medicinal purposes; but it does not concern us now to discuss this group of natural waters. There is, however, a very distinct class of substances which rain-water finds in and beneath the soil, and which it has power to dissolve, namely, substances of organic origin, derived from the vegetable and animal kingdoms. All soils contain a greater or less proportion of vegetable matter. There are large areas which consist, to a depth of many feet, of little besides half-decomposed vegetation.

The products of decaying vegetation are soluble, as is shown in the coffee-colored streams that flow off of peat bogs. So all spring water that descends through tracts covered with vegetation, and especially that which is derived from cultivated land, contains these products of decaying vegetation. Such water may be unpalatable, but can scarcely be said to be unwholesome. Decomposed vegetation exerts a poisonous influence when it escapes in the dry way into the atmosphere, but in aqueous solution it is comparatively innocuous. It is far different with substances derived from the animal kingdom. These turn the drinking water with which they are mingled, sometimes into slow and subtle poison, and sometimes into the agents of a swift destruction. Two dreadful scourges of the race, typhoid-fever and cholera, are in particular connected often in origin, and much more frequently in transmission, with the supply of drinking water. It has been abundantly and conclusively proved that drinking water, contaminated by the excreta of persons suffering from either disease, is a common carrier of their germs.

I will not detain you with any extended recapitulation of the evidence, probable and conclusive, which traces cholera and typhoid-fever to such contamination. The records of the medical profession, and of sanitary science for the last few years, in our own country and in Europe, furnish a demonstration of the connection of which I speak.

Two or three cases, however, I venture to lay before you, as specimens of the line of proof on which these statements are based:

At a meeting of the American Public Health Association, held in New York in 1873, Prof. Austin Flint, Jr., gave an account of "an outbreak of typhoid-fever in Vermont," which it was possible to trace in the most circumstantial way to the poisoning of a well by such modes as I have named. A young man traveling through that region by stage-coach was taken ill, and when he could go no further, was left in a tavern in a little hamlet to be cared for; the illness proved to be typhoid-fever. A small water-course in a shallow valley, divided the hamlet into two portions, each of which consisted of a half dozen houses or less. In the course of a few days, new cases of the fever made their appearance in that part of the village to which the tavern belonged; every house, in fact, was invaded, but one, while on the other side of the stream not a case occurred. It appears that a tavern well, which was the only one on that side of the village, furnished the water-supply to all the families but one belonging there. That family had had a falling out with the landlord—"an unpleasantness"—to use an expressive Americanism, and had, consequently, deserted the tavern well for a more distant supply, and so had escaped drinking the specific poison by which all their neighbors were stricken down. Another example I draw from a story of the famous "tea-water pump," which, during the cholera visitation of 1854, in London, killed five hundred persons in a single week, in one of the fashionable localities of the city. It has long been known that water containing five or six grains of lime and magnesia to the gallon, is much preferred for making tea, to water of any other quality. The lime prevents the water from dissolving the astringent matter of the leaf, yet does not interfere with the abstraction of its desirable constituents. Certain wells, then, that have this proper proportion of mineral matter, come to be very highly valued by persons of nice taste. Readers of Don Quixote will remember the extreme delicacy to be attained in the matter of testing wines by good gifts and long practice; it would be uncharitable to suppose that imagination or fashion ever intrude into such a field as this. At any rate, the Broad Street Pump, near Golden Square, London, was known to furnish in its cold and sparkling waters a better medium for "the cup that cheers but not inebriates" than was elsewhere to be found. When the cholera invaded this neighborhood, the wealthy residents retired to the fashionable suburbs that were still uninfected, but the cholera broke out among them there with terrible severity. The health officers soon discovered that those who were attacked, had sent in every day to the Broad Street pump for their water supply.

The third case that I will instance in this connection is the following:

A few years ago typhoid-fever broke out with great violence along certain streets of an English town; there was absolutely nothing in the surroundings of the families attacked to show why they were taken and their neighbors left, and the case seemed at first to be one of those of which the world but a few years ago was so full, but which have grown to-day to be very rare, which are found to require for their explanation the arbitrary decree of an inscrutable Providence. It happened in the instance here noted that all of the families attacked were supplied with milk by the same milkman. You see the rest—the milkman's pump, which generally works in the interest of dishonest gains, was here made the agent for distributing through a score of families the seeds of disease and death. It is but justice, however, to state that no charge was made of any gross dilution of the milk; it was given out that the small quantity of water left over in the cleansing of the milk-cans had spread the infection.

To those of us whose knowledge of human nature has been gained on this side of the Atlantic, such an explanation betrays altogether too trustful a simplicity, and would be impatiently whistled down the wind. The only improvement which the story, read in this light, seems to demand, is expressed in the old proverb, "Murder will out."

I have made the general statements that my subject requires. Our water-supply is derived from the rain-fall. The rain-fall flows *over* the surface in superficial drainage, or disappears *beneath* the surface, sinking slowly and quietly through beds of sand and gravel, and gravelly clay, and through solid rock, until it reaches an impervious layer, the outcrop of which becomes, wherever it is found, a horizon of springs, and the surface of which becomes, when the beds that hide it are pierced by shaft or drill or driven tube, a reservoir for wells.

When it flows over the surface it dissolves some of the material it meets with; but in its more leisurely underground progress, it takes up large quantities of foreign materials, some of which in certain proportions seem to increase its adaptation to human needs, and others of which are liable to convert it into a specific and virulent poison.

I ask you now to notice a few of the applications of these general principles to our surroundings, or in other words, to consider briefly the relations between the geological structure and the water-supply of Ohio.

Two great divisions of the surface of the State must be recognized in considering its water-supply. In far the larger portion of its area the water-supply is derived from the drift,—the most recent of geological formations, and at the same time the most anomalous and perplexing.

In a smaller portion of the State—where the surface consists of the outcrops of the various rock formations of its geological scale, with the thin covering of native soils which their weathering has produced, or with shallow deposits of drift—the water is borne by the rocks themselves. Let us examine these two divisions in the order in which they have been named:

I. All theories of its origin, and all phases of the history being left out of the account, I will refer only to those features of the drift that immediately concern our present purpose. It is known to all that the rocky floor of the country north of the fortieth parallel is hidden from view in by far the larger portion of its area; in Madison county, for instance, but three exposures of the underlying rocks occur, and these are of but very limited extent; probably not one person in a hundred of those born in the county has ever set eyes on any of these outcrops. It is not thus obscured by products of its own weathering; but heavy deposits of foreign origin, often having no similarity in composition to the underlying beds, have been laid down upon it. These deposits vary in thickness from a few feet to several hundred feet. They consist of sand and clay and gravel and bowlders variously arranged and intermingled.

While no tabular view of the order of arrangement could be furnished that would fit every locality, it may be said in general terms that the lowermost of these deposits is the extremely compact and tenacious blue clay, commonly known as hard-pan, containing occasional bowlders, and scattered and irregular seams of gravel and sand. Over this, and often separated from it by quite a distinct boundary, are beds of sand, of gravel, and especially of a yellow, gravelly clay, sometimes formed from the weathering, and sometimes having a very distinct origin. The blue clay is almost or altogether impervious to water; the remaining beds are, with local exceptions of limited extent, thoroughly permeable. There are sections of the State in which the blue clay constitutes the surface. In such cases but very little of the rainfall is able to enter the ground, and springs are almost impossible; while the wells are cisterns filled from surface-drainage, rather than living fountains. In the central district of the State, the porous beds of which I speak are almost always present. They vary in thickness from five to fifty feet, but in by far the greater number of instances they are between the limits of ten and twenty-five feet. You will not fail to recognize the beautiful adaptation of this structure to human uses. The blue clay is the water-bearer; the porous beds overlying it are the filter. The rain-fall, after being contaminated with the soluble materials of the immediate surface, must be strained through fifteen or twenty feet of filtering beds before it can be accumulated for the use of man or beast.

There is no reason, whatever, for believing that the surface of the water-bearing clay is a level surface; there is, on the contrary, every reason for believing that its surface is at least as diversified as is that of the superficial beds that cover it. There are found within it reservoirs or wide sheets of water, and there are narrow channels by which the water is slowly moving outwards. The extent of these reservoirs explains the success which so often attends the labors of the sorcerers and diviners, who locate wells by the help of a forked twig.

Let us make application of the general principles already enumerated, and of the particulars of geological structure just given to this region. The water depended on for daily use is, in the great majority of cases, obtained from wells. What is a well? Generally, it is a cylindrical shaft sunk to the surface of a water-bearing bed. As we have no other purpose in sinking the shaft but to reach the water-reservoir, we are prone to think that the shaft confines itself to the simple and useful office of furnishing a way to the water. But not so. There is another office which, in the nature of things, it must discharge.

The shaft is a *drain*, as well as a way to water. The principles of land-drainage are now quite generally understood, but a very important application of them to the subject which we are considering seems to have almost entirely escaped observation. A drain cut through a soil of ordinary porosity will draw water for varying distances, in proportion to the depth of the drain. Drains sometimes open into a pit, six or eight feet in depth, in some central locality, the drainage-water being perhaps removed from this pit by artificial means. But the pit itself would, without the intervention of draining tile, constitute a drain for a certain area around it. A drain five feet in depth will, even in a compact soil, effect an amelioration of it for at least twenty-five feet on each side, and the pit in question would certainly exert a similar effect on the contiguous area.

But if the pit be named a well, it does not thereby lose this power of drawing water from the area adjoining it. The well then is a vicarious drain, and often an effective one, for the ground about it. A part of its regular supply of water is close at hand. How far do we need to go to find the balance? Not so far as we sometimes think.

There is a great deal of mystery in the minds of the multitude in regard to subterranean waters, much of which would be dispelled by a little mathematical calculation.

The average annual rain-fall in Central Ohio is forty inches. Every square rod of surface must receive about 6,700 gallons of rain annually supposing two-thirds to escape as surface-drainage, a rood would still furnish 90,000 gallons to the reservoir below. Reduced to another standard, we should find more than seventeen tons of water descending through this area. Remembering the treatment that the surface immediately about the well too often receives, we may be willing, or even anxious to look beyond the door-yard for the sources of our fountains; but we must hold fast to facts; the yard is a part of the porous surface of which we have spoken. That the rain descends upon the evil and the good, is as true for soils and surfaces as for their owners; the rain disappears below the surface; there is absolutely nothing to prevent the filth-soakage of the yard, with all its abominations, passing by a short course to the well. Nothing to prevent? There is everything to make this result inevitable. This surface contamination of wells is no problematic and possible source of infection, it is actual and imminent. In the terrible outbreak of cholera in 1873, in Kentucky, numerous cases were recorded in medical journals of the west, of the rapid diffusion of the pestilence by means of wells poisoned in precisely this way. One darker corner of the premises still remains to be considered. The cess-pool lies within the area of influence; it is generally an uncemented pit, dug in the porous beds of which we are speaking. That these beds do not lose their porosity because turned to such a purpose and known by such a name, is evident from the fact that these reservoirs of impurity so seldom overflow; their liquid contents disappear. Where do they go? Where all surface-water goes—to a lower depth, to mingle with the great sheet beneath, from which our supply of drinking water is drawn; or if a draining-pit, sunk two or three times its own depth is at hand, to that pit it will hasten by the shortest routes, even though we call this pit a well.

It is physically demonstrable that in multitudes of instances the cess-pools feed the wells. The additions to the cess-pools of one day, are pumped from the well on the next.

Nay—the great law of habit applies to underground water-ways no less than to human character. Where the water goes one day, it is more likely to go the next; direct channels of communication will be established to meet the daily demand. In some instances, a marvelous rapidity of communication is found to exist. A case is recorded in England, in which chloride of lime was thrown into the cess-pool, and the adjoining well instantly yielded chlorinated water. Do you ask, what are these vaunted filter-beds doing all this time while the wells are being fed from these vile sources? I answer, they are doing their appropriate work steadily and well; they are clarifying all of the water that flows through them. It requires but a few feet of these natural filters to thoroughly remove the solid particles with which the water enters them. They generally remove both color and odor also from the surface-water.

In some respects they effectually purify water. Give them time enough, and they will transform the foulest and most noisome sewage-water into the crystal springs which poets celebrate in immortal verse, and which even religion takes as the type of its best gifts to man. But time they must have, and they can gain time only by the intervention of distance sufficient, between the points of supply and delivery.

Their agency on this part of their work is not mechanical, simply; they depend on the air which they hold for the decomposition of all offensive compounds, and this process of oxydation is comparatively slow. The danger lies in the overtasking of the filters; in requiring them to dispose of sewage as well as of rain-water. It cannot be too distinctly understood that *clear* water is not necessarily *pure* water, any more than cool air is pure air. A city well may give no warning to any sense; its waters are refreshingly cool, for they come from a sufficient depth; they are clear and sparkling, for they have been strained through a filter adequate to free them, not only from all solid particles, but from all color also; they may even give no odor; at least, those accustomed to their use will detect none, and yet they may be laden with the germs of the deadliest pestilence. Such cases have happened a thousand times.

The explosive outbreaks of cholera that have often been limited to single tenements in a city, or to a single block or streets, are, in the light of recent sanitary researches, without a doubt to be referred to this cause. The suspicion of wells poisoned by design, which has so often filled a whole community with an unspeakable and undefinable horror, finds an explanation here which relieves human nature of one of the darkest crimes ever charged to its account. The addition of one grain of sewage defilement to the gallon of water-supply was found, in the cholera epidemic of 1866, in London, to be directly connected with 71 per cent. of the whole mortality caused by the pestilence.

Geology turns over to sanitary science the conclusion that the drift-wells of South-western and Central Ohio are, in all densely populated districts, in all cities, towns, villages and hamlets, even those containing no more than a dozen houses, *utterly unfit for human use.* I have omitted all mention of contamination of water from adjacent graveyards and cemeteries. In the older countries of the world, this has been found to be a prolific source of evil – and the danger, nay the certainty of such contamination, is leading many to advocate a return to cremation in place of modern burial. The farmer's well in diluvial soil is not always safer than his city neighbor's; convenience leads him to locate it near the house and adding to other sources of danger, the barn-yard in many instances is close by. In default of any system of sewerage, all the water drawn from well or cistern for daily use, after being made the medium for carrying away the accumulations of wear and waste, which it is the business of good house-keeping to remove, including the animal matters dissolved from soiled clothing and left over from the various stages of the preparation of food, is thrown upon the surface of the filtering beds to feed the well.

Evidently, the farmer's well will bear watching. *You*, will not answer, as many do, that the fact that people have depended upon such water-supply through the generations past, and that still the country is not depopulated, should allay our fears and reconcile us to the established ways of meeting our daily wants. If it were known that a well would carry infection and death to every one who drank of it, even the miserable suicide would pass it by and seek an easier way out of the world.

But sanitary science seeks to guard us from the pestilence that walks in darkness, and the destruction that wastes at noon day; it teaches us that, after all, fever and pestilence are enemies less to be dreaded than those insidious agencies that lower the tone and undermine the vitality and thus leave us to fall an easy prey to various forms of disease, or to be carried away by some one of the periodical waves of mortality that sweeps through the land. It shows us how fallacious is the testimony of our senses on such points as these, and would fain turn us over to the guidance of our rational faculties.

Do you ask, where shall we look for a proper water-supply? To wells and springs, certainly, I answer, where they are properly located, and above all, where they are properly guarded against doing the vicarious work of discharging sewage. Roof-water gathered in properly constructed cisterns, and drawn for use by properly constructed apparatus, is always safe. Running water is almost always safe. Sir Walter Scott alludes to the old belief that the magician's spell is broken by the crossing of running water. Enchantment can not dwell in a living stream. Running water, indeed, possesses as surprising a power as the breaking of a sorcerer's arts would be—the power of self-purification. The sewage of a civilized town—or if you can think of any thing viler, the contents, for example, of the witches' caldron, in Macbeth—diluted with a score or two times its weight of water, and made to flow a dozen miles in the light and air, loses its baleful potency and becomes sweet and wholesome. The Light and Air! These are the wonderful agents that work the wonderful transformation—the mightiest of terrestrial forces and yet the mildest.

The group of questions to which this one belongs,and of which it forms so important a part, is now commanding the greatest attention of all the older portions of the civilized world. More and more is it coming to be seen that, like the Sphinx's riddle, these questions must be answered rightly, or we must give our lives as forfeit. "Am I my brother's keeper?" asks the selfishness of man in every age. Sanitary science answers, "Yes! Yes! Unless you keep your brother, you cannot keep yourself. You may leave him to live and die like the brutes that perish—in a worse condition even than they—but no man, not even the loathsome beggar, liveth or dieth to himself. The pestilence which he breeds may come betwixt the wind and your nobility, and smite you in your purple and fine linen." The responsibility is at our own doors. The curse, causeless, does not come.

When, a few years since, the cholera was approaching the shores of England, the clergy besought Lord Palmerston, then at the head of the Government, to appoint a day of fasting and prayer, if so be God would be gracious and turn away his threatened wrath. The premier gave their piety a wholesome shock by advising them not to waste their strength in fasting, but to spend it in sanitary cleaning. The hard-headed old man was right, and the result showed that he knew more of the mind and the ways of the Lord in regard to cholera, than those who claimed to be His messengers. "To obey is better than sacrifice." We have fallen upon evil days. When the pestilence smote the camp of the Greeks, "far on the ringing plains of windy Troy," not a man of them all, save at least the haughty Agamemnon, need deem himself at fault. It was the silver bow of Apollo that wrought the evil. And through all of the Christian ages, even down to our own day, it is the hand of God to which we have charged all like visitations of disease. But Apollo is dead, and God forbids us any longer to misinterpret His providence; and we, alas, must bear our own burdens, and, for a multitude of our sicknesses at least, must accept the humiliating explanations which are furnished by our ignorance, our self-indulgence and our laziness.

THE SANITARY MANAGEMENT OF FARM ANIMALS.

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The loss of farm stock by disease is one of the ways by which the farmer's profits are reduced. Could he diminish or prevent this loss it would be just as well for his balance sheet, as the same amount added to his sales, for "a penny saved is as good as a penny earned." Let us, then, talk over what may be done to avoid the loss of domestic animals by disease.

The annual assessment of farm stock in Ohio is between seventy and eighty millions of dollars. This valuation, as we all know, is very low. It will be safe to add a third and say that farm stock in Ohio is worth one hundred millions of dollars. The loss from disease as reported to the assessors, is about three per cent. annually; some years it is more, and some years less. An annual loss of three millions of dollars is worth considering, and, if possible, it should be prevented.

Every disease has its cause: to remove or prevent the operation of these causes is the common sense way of avoiding disease. "Prevention is better than cure," is a time-honored and correct maxim, and one upon which the farmer can rely more safely than upon all the patent nostrums that have ever been advertised.

In making a study of the cause of disease we can not do better than to adopt an old classification which groups them as *predisposing* and *exciting* causes. Predisposing causes are such as age, sex, condition, previous disease, and inheritance; these are not diseased states, nor do they produce disorder, but they render animals more or less liable to particular forms of disease; hence, they are said to predispose to them. For example, very young animals are subject to certain forms of disease, and mature animals to other forms. Males are subject to some diseases and females to others. Fleshy animals are especially liable to some affections, and those in low condition to others. These various conditions must be taken into the account, not as actual causes of diseases, but as circumstances that favor or interfere with particular attacks. What are called exciting causes are the real and efficient causes of disease. These are such as inclement weather, improper food, poisons, parasites, mechanical violence, contagion, etc.

Take a few illustrations of the way in which some of these causes operate in producing disease. A horse has at some time had an attack of rheumatism; then he was stiff and lame, but after a time he got better, and was thought to be entirely well, and he was well so far as the pain and stiffness were concerned, and probably he could work at ordinary work as well as ever. But if one could see the inside of that horse's heart, an organ which is very likely to be affected in severe cases of rheumatism, they would possibly see the valves at the entrance of the great vessels, or between the cavities, either grown out of shape or turned into bone as the effect of the inflammatory attack which accompanied the rheumatism. The horse works from day to day and appears all right, so long as he works in moderation, but let him have to pull an unusually heavy load up a steep hill, and he drops dead in his harness. I have seen this happen more than once. The violent exertion was the exciting cause of the sudden death; the former rheumatism had left the predisposition.. Another horse is taken from a livery-stable in a winter's night and driven as fast as he can go for eight or ten miles; then, overheated, he is hitched in the cold, while his drivers make a call to get a drink or a fresh supply of cigars. The horse stands until he is chilled, then he is driven home again as fast as he went. In two or three days he shows congestion of the lungs, which passes rapidly into inflammation, and in two or three days more he dies. The overheating and increased respiration had predisposed the horse to be affected by the cold which becomes the exciting cause of disease and death.

Another horse has a full feed, and after eating he is immediately put to hard work; his food has not had time to digest or even for digestion to begin, so he has what is called staggers; he runs off sidewise and falls down as if in a fit. Another horse is fed immediately after he comes in from exhausting labor; he can eat, perhaps, but has not nervous force left to digest his food, so after a while it ferments and a large amount of gas is evolved, and the horse has spasms of pain or is in agony from flatulent colic. The existence of colic is no proof that improper food was given, it rather proves that the horse was not in a condition for prompt digestion. Another horse is driven at the top of his speed upon a hard road, and the consequence is, that he becomes lame. A colt may be put to steady work before his skin is accustomed to the harness, and as a result he is pinched or chafed or bruised. Now, is it not a great deal easier to foresee these diseased conditions and avoid them by avoiding the cause, than carelessly to allow them to come and then spend time and money in probably unsuccessful efforts at cure?

Cattle are sometimes fed apples, turnips, beets. or pumpkins; they do not often get choked, but occasionally they do when their food was not properly divided. Sometimes cattle are allowed to feed on fresh grass or clover, and overfill themselves; when brought up to the heat of the body the clover ferments, gas is formed, and the animal becomes bloated or hoven. A fine cow, often the best milker on the farm, comes near to calving; she is quite fleshy, and, perhaps, a little costive; finally she has a calf, and in a day or two is down with parturient apoplexy or "falling after calving", as it is usually called; a more laxative diet, or a dose or two of cathartic medicine would have prevented the attack. Such a cow after calving sometimes finds her way to a brook or spring, and drinks enough cold water to bring on a chill, which is soon followed by an attack of parturient fever. A pailful or two of tepid water carried to the cow in the place of allowing her to drink the cold water would have avoided all the trouble.

Sheep, after shearing, are sometimes exposed to cold storms, or are left in the field while the nights are too cold. This exposure brings on a chill, and after this comes pleuritic inflammation. In a few days or weeks they die of dropsy of the chest, or if they seem to recover, their lungs ever afterwards adhere to their sides. Sheep are sometimes overheated on their way to be washed, in consequence of which they may receive a chill from washing, which leads to the same result as a want of protection after shearing. Hog-cholera is undoubtedly a contagious disease, and where many hogs are kept together, it often occasions serious loss. Whether the disease is more like typhoid-fever of the human subject, or more like anthrax, has not yet been decided to the satisfaction of every one, but the less hogs are exposed to the means by which contagion is conveyed, the better the chances of escape; so far, there is little room for difference of opinion.

These examples of the manner in which some diseases are produced or diffused will convince us of the necessity of giving careful attention to the following points:

To afford adequate protection from severe cold is, in some instances, enough to prevent fatal disease. Sometimes the benefit of shelter is seen in the saving of food more than in the preservation of health. Not far from three-fourths of the food consumed by animals in this climate goes for the maintenance of animal heat, so that the saving by shelter is both of health and food. In seasons of extreme heat, stock need protection from the direct rays of the sun as much as they need protection from the storms of winter.

Food of improper quality or quantity, or fed at improper times, is a frequent cause of disease. Several plants that stock readily eat are positively poisonous; to destroy such plants or to keep stock from them are obvious ways to avoid their bad effects. The differences between different articles of food and the adaptation of particular kinds to special purposes, render a complete knowledge of the composition of food, of great importance on the score of economy as well as of health.

Good water for stock is also a matter of prime consideration—it is a necessary of life as much as food, and stock will rarely thrive unless they can drink at pleasure. Water in abundance, not too cold, not too much, charged with either inorganic or organic substances, and readily accessible, must be regarded as indispensable. How to obtain such a supply, whether from streams, ponds or wells, and by what means or machinery it can be made available, is on many of our farms a matter of serious concern. It may also be of equal consequence to get rid of a surplus of water; the complete natural history of the parasites that produce the paper-skin and the rot of sheep may not be fully known, but it is almost, or quite a certainty, that those parasites are much more troublesome on lands that need draining or that are occasionally overflowed.

Cleanliness about stables, sheds, piggeries, and all other buildings in which stock are housed, is just as important to the health of stock as cleanliness about the house is important to the health of the family, and the sewage from such out-houses requires removal with equal care. The ventilation of stables and cattle sheds is especially deserving of attention. No disease is spreading more alarmingly among our better bred and most carefully housed cattle than tuberculosis. In the human subject, and presumably among the inferior animals, no cause of this disease is believed to be more potent for mischief than living in apartments where there is insufficient air-space, and where the air must, of necessity, be breathed over and over again. Yet how rarely do we find a shed or stable where the whole air of the interior is not laden with animal odors, the products of respiration or of other secretions.

Means of disinfection need to be adopted occasionally about most farm buildings, sulphurous acid gas, obtained by burning brimstone upon shavings, is probably the best disinfectant for all buildings that can be tightly closed. Chloride of lime will, in some cases, be more convenient and perhaps equally effectual. To prevent the spread of contagious diseases, not only must disinfectants be used, but rigid separation and isolation will be required.

Inasmuch as there are many places in Ohio where the services of a well instructed veterinarian cannot be obtained, there are some matters relating to the treatment of disease of which every stock man should make himself master, for according to the adage, it is the "stitch in time that saves." Every stock farmer should be able to give intelligent and gentle assistance to any animal that presents a case of difficult parturition. He should be able to judge from the pulse and temperature what is the immediate need in any case of sudden illness, and what to do in any case of a wound or mechanical injury. The farmer can readily learn to discriminate between the successive stages of a common inflammation, and what should be done for each. At the State University we do not attempt to give a complete veterinary education, but I am safe in saying that we do give to young farmers a pretty complete course in sanitary science. The causes of disease, its nature, how to observe disease, and discriminate between its different forms and the principles of treatment are carefully taught. Such teaching will fit the farmer to take intelligent measures to maintain the health of his stock, will teach him what to do in sudden attacks of disease, and also how to appreciate better help where that can be obtained. Every stock man may save time and money by keeping on hand at all times a few instruments and a few drugs, to use in a possible emergency when help must be immediate to be of any real value. If a farmer doubts whether he can make proper use of such things, let him buy "The Farmer's Veterinary Adviser," by Professor Law, of Cornell University; it will cost three dollars, but it is the indispensable book for a stock farmer. This book the farmer should study at his leisure until he has its contents at command; by this plan it will prove of greatest service when he has no time to read, as in sudden cases of choking, bloating, hemorrhage, etc.

There are a few instruments which a stock farmer should have ready for use. A trocar and canula, with which to puncture the paunch of a cow or steer, when too badly hoven or bloated to trust to slower remedies, or a horse may require the colon to be punctured in some cases of flatulent colic. Surgeons' needles of different sizes are often useful; these needles are curved a little, but their peculiarity is in being sharp on the sides, so that they easily pass through the thick skin of an animal in sewing up a wound. Saddlers' silk to use with these needles may be obtained at almost any harness shop; this is stronger and better than any other thread. A cow's horn properly trimmed, or a convenient bottle should always be at hand for the administration of medicines to large animals. A fleam or lancet for bleeding ought to be kept, for though bleeding is not now used or misused as it was fifty years ago, there is danger that we may go to an opposite extreme and neglect to bleed where it would save the life of an animal. A good sharp knife is also a useful instrument, the nurseryman's budding-knife, which has a long handle, a thin broad blade and a convex edge, is as good for an operation as a doctor's scalpel. Other instruments are sometimes convenient, but they are not so essential.

A few drugs should be kept for stock in every farm-house; when they are needed there should be no necessity for going to a store or to a neighbor's. Glauber's salts for a cathartic, Saltpetre for a diuretic, Laudanum to allay pain or spasm, Ginger or Pepper as a stimulant, Tincture of Aconite as an arterial sedative, with Spirits of Turpentine as a vermifuge and for external applications. These few instruments and drugs should be kept where they can be had without loss of time, and the farmer should not regret the small outlay, although he may not need any of them once a month, or even once a year. When a farmer wants one of these things, he wants it at the moment, and its instantaneous use may save an animal worth ten times more than the cost of all the articles I have named.

By a careful study of the causes of disease, and by carefully preventing their operation, you may avoid most of the diseases to which our animals are liable. This will make no inconsiderable saving in the course of a year, besides the pleasure you will enjoy in seeing your animals in health and comfort, which every good farmer desires next to the health of himself and family. Indeed, the thoughtful and intelligent study of what will promote the health of his flocks and herds, will have a most favorable influence on the farmer's own health, and upon that of his family.

AGRICULTURAL MEETING AT LANSING, MICHIGAN.

On the 28th, 29th, and 30th of June, the professors of agriculture and horticulture from several of the agricultural colleges of the Western States met at the Michigan Agricultural College, at Lansing. At the meeting there were present Professors Budd, of Iowa; Georgeson, of Texas; Henry, of Wisconsin; Knapp, of Iowa; Morrow, of Illinois; Porter, of Minnesota; Thompson, of Nebraska, and Townshend, of Ohio; also President Abbott, Professors Johnson, Kedzie, Beal, and Cook, of Michigan. The principal business of the meeting was to agree upon some plan for united and systematic agricultural experimentation; students' labor, courses of study, modes of teaching ,etc., also received a share of attention. Valuable papers were read from Professor W. O. Atwater, of Connecticut, and Lazenby, of Cornell, New York. Reports were made and discussed, and future action agreed upon. Following is the report of Professor Townshend, on conjoint experimentation, which, after some modification of the resolutions appended, was unanimously adopted :

DR. TOWNSHEND'S REPORT.

MR. PRESIDENT : The Committee on Conjoint Experimentation, appointed at the meeting of agricultural teachers held at Champaign, Illinois, in June of last year, has had the subject under consideration, and begs to submit the following report :

The resolution under which this committee was appointed limited inquiry to a consideration of the practicability and plan of uniting the several agricultural colleges there represented in experimental work, so as to avoid the unprofitable repetition of similar investigations, and at the same time secure by division of labor a more complete and rapid examination of pressing questions. Discussion while the resolution was pending, as well as that which followed the presentation of a preliminary report made at the same meeting, indicated a desire that the final report of the committee should not be restricted to the points specified, but take a wider range, and serve as an introduction to a discussion of the whole subject of farm experimentation. Your committee has endeavored to obey instructions, both written and oral, and has therefore prefaced what it has to offer on the special points submitted by a few paragraphs on other aspects of the subject.

The idea of systematic experimentation for the discovery or verification of new truths in agricultural science, if not strictly an outgrowth of the present century, has certainly during this period been brought more prominently to view. In 1804 Thaer commenced his agricultural experiments and farm school at Moeglin. In 1827 Christiani began, and with the aid of his son, for many years continued farm experiments at Oderbruck. In 1835 Boussingault engaged in similar experiments at Bechelbronn. In 1837 J. Bennet Lawes began to experiment, and in 1843 inaugurated at Rothampstead that series of investigations which has made his name and that of his associate, Dr. Gilbert, famous both in Europe and America. The chemical and agricultural teachings of Liebig and Stockhardt prepared the way for the establishment in 1852 of the experiment station at Moechern under Emil Wolff. Since that date experiment stations have been established in nearly every country in Europe, so that at present they number not less than one hundred. There can be no doubt about the high rank these experiment stations are entitled to hold among the agencies that have brought about the great agricultural progress of the present century.

In the United States we find experiment stations coming into operation either as State institutions, or in connection with the agricultural colleges endowed by the General Government. Here, however, they have not attracted as much attention as in older and more densely populated countries. The almost unlimited extent of our uncultivated and fertile soil has made the occupation and clearing of new lands more economical and more attractive than the restoration of farms that have become sterile by bad management. In many of the older States, however, the time appears to have come for a better and more conservative husbandry. Even in Ohio, which fifty years ago was regarded as the most fertile of the then new States, the evidences of partial exhaustation of the soil and the means for the restoration of its lost fertility, have already become interesting topics of discussion. I regret to say that the State of Ohio has not yet expended a dollar to provide for systematic experimentation, a means of improvement which in other States and countries has proved so efficient and economical. Two years since numerous petitions were presented to the Ohio Legislature asking for the establishment of an Experiment Station upon the farm of the State University. Subsequently a bill was introduced providing for an appropriation of ten thousand dollars to erect buildings, purchase instruments and material, and meet expenses for one year. But the farmers of the State, or their Representatives in the Legislature, had not become awake to the importance of the measure, and the bill failed to become a law.

Persons not familiar with the subject do not realize that an experiment station to answer the many questions presented by the various agricultural interests of a great State, requires at the outset not only sufficient land, but suitable buildings and money for the purchase of material and labor, and also the assistance of scientific men. Inasmuch as chemical analyses are required for the protection of farmers from frauds practiced by some of the manufacturers and venders of commercial fertilizers, many persons have fallen into the mistake of supposing that the making of these analyses constitutes the chief work of an experiment station. In fact, such analyses may be made at any chemical laboratory, and very rarely can they with propriety be regarded as experimental work. In Germany some experiment stations (so called) have but little land attached, and in some instances, none at all, and however useful, they are in fact, nothing more than chemical laboratories devoted to agricultural purposes. Other experiment stations make good use of extensive farms. That of J. Bennet Lawes has 450 acres upon which most elaborate and valuable field experiments have been made for a long series of years. To answer the knotty questions that beset the American farmer, it is essential that a farm be attached to every experimental station, and that the farm shall have pastures and meadows, crops of all kinds, and all kinds of stock, and fences, buildings, implements, teams and laborers. Suitable buildings are indispensable, such as propagating or plant-houses, in which the temperature can be controlled, not only for the growth of plants, but for the testing of commercial seeds, a matter not less important to the farmer than the testing of commercial fertilizers. There must be rooms for weighing and measuring, for drying and storage, and also for chemical laboratory, unless this already exists as a part of an associate educational institution. Experimental work requires money for the purchase of materials such as seeds and fertilizers and for laboratory expenses, and to compensate experts, except where they may be found in our agricultural colleges. Still more is money needed to compensate the large amount of careful labor which all experimental work necessarily involves. The station at Rothampstead is economically managed, for the director, a gentleman of wealth, not only gives his time but pays all expenses from his own pocket, which is perhaps a sufficient guarantee that there is no extravagance, yet the annual cost is fifteen thousand dollars. Many experiment stations in Germany, in Great Britain and in the United States do what they can upon an income of one-half or even one-fourth of what is expended at Rothampstead. Well qualified men are also necessary to successful experimentation. The direction of a station may rest with a Board or upon a single individual. If, under the control of one person, he must be familiar with all forms of agricultural industry, or in such intimate relations with each that he will understand the wants of all. And he must be able to command the assistance of a botanist, an entomologist, a microscopist, a chemist, a physiologist. Adequate provision for meteorological observations must be made at every station, unless those made at a United States signal station in the vicinity are available. The fact that the sciences referred to are all taught in our agricultural colleges, and specialists in all of these branches are to be found in most of them is the great reason for attaching experiment stations in the United States to agricultural colleges. Another good reason for this association is found in the fact that the original research of an experiment station has great value to students as a means of practical education.

To obtain some adequate idea of the wide range of inquiry which a successful station in one of our Northern or Western States must be prepared to meet, it may be desirable to look for a moment at the various interests which will be certain to present problems for solution. The dairyman will have his questions about the adaptations of various breeds of stock for his special uses ; of the influence and comparative profit of all kinds of feed, the comparative effects of shelter, pure air and good water, the extent and profit of machinery, and the means for preserving and transporting his products in the best condition. The grain raiser will have his questions about varieties, quantities, conditions, and times of seeding, modes of tillage, climates, soils and manures, of harvesting, preserving, and preparing for market. Stockmen will have innumerable questions about horses, cattle, sheep and swine; their various characteristics and adaptations, the principles of feeding and breeding, especially how to prevent the spread of such diseases as the epizootic catarrh of horses, pleuro-pneumonia and Texas fever of cattle, the lung-worm and foot-rot of sheep and hog-cholera among swine. Farmers interested in general improvement will ask for experiments on hedges, fences, buildings, machinery, drainage, irrigation, etc. Fruit-growers and gardeners will have their many questions of soils, manures, climate, situation, varieties, modes of propagation and management, especially how to protect plants and fruits from the myriads of insect enemies. Forestry, serriculture and the apiary will also claim attention. These are only some of the sources from which questions will come—questions which can be answered only by careful experiment made by the farmer himself or by others working in his interest.

From the extent and diversity of the interests embraced by agriculture, it must be evident that an experiment station should be amply furnished; the few simple experiments which can be made without special appliances, have been many times repeated. The differences of soil and climate and products which this country presents, and the multitude of new methods and adaptations that may be required, not only prove the need of careful experiment, but convey the impression that experimental work in this country is scarcely more than begun. A large proportion of the questions that await solution cannot be successfully mastered by the individual farmer, of limited means, without the necessary appliances, and often without scientific education. If the increase of agricultural products adds to the wealth of the whole country, and benefits not only the farmer, but almost equally all other arts and professions, is it not unquestionably the part of an enlightened State policy to give all necessary aid and encouragement to agriculture? This, indeed, is conceded, and in most of our States laws have been passed with this avowed object. Congress displayed wise forethought in donating lands to the several States for the establishment and perpetual maintenance of colleges in which all branches of learning that relate to agriculture or the mechanic arts were to be taught. If the States will take up the work which Congress began, and will now endow well appointed experiment stations in connection with all these colleges, a most valuable combination of teaching with research will be secured. The union of investigation with instruction in all these institutions will not only be highly advantageous to students, but may be expected to prove of still greater advantage to the agricultural progress of the country.

To make the best use of time and money, experiment stations should be established in all the States. Each station should know what all others have done, and some arrangement should be made by which future work will be properly and conveniently distributed. Your committee therefore recommend that every agricultural college here represented, and indeed all others, shall become associated for this purpose; that at least once a year those having charge of the experimental work shall meet and review the work done, consider what is required, then by mutual agreement distribute new work, according to the means at the disposal or the special facilities of each institution. It may be thought that our whole country is too large for a single association, and doubtless it will be more convenient to have several such associations each formed of a few contiguous States that have climate and products in common. The Pacific States can have a good association, the Southwestern States another, the Northwestern States a third; New England, the Southern, and the Middle States are distinct geographical and climatic regions, and may find it convenient to form separate associations.

Each agricultural college or independent experiment station will report to its own association and all the associations should report to the Agricultural Department at Washington, and from that common center complete reports may be distributed over the whole country.

To bring these suggestions to a practical issue, the committee begs leave to recommend the consideration and adoption of the following resolutions :

Resolved, That the agricultural colleges and State experiment stations here represented, so far as the same may be subject to our advice or control, are hereby united as an association for more systematic and efficient experimental work.

Resolved, That each college or station shall report to the Secretary of this association what experimental work it has already done, and what kind and amount of work it is prepared to do.

Resolved, That the representatives of agricultural colleges which are not provided with facilities for experimental work be earnestly requested to make renewed efforts to secure the necessary outfit and to report to this association so soon as they are ready for work.

Resolved, That all other agricultural colleges and State experimental stations be cordially invited to join this association and co-operate in its work.

WHAT A FARMER SHOULD KNOW AND BE.

By Prof. O. N. Stoddard,
Wooster, Ohio.

There is no occupation requiring more varied information, a sounder judgment and more common sense than cultivating the soil and raising stock. Is this saying too much? It is a strong statement, but true. The celebrated Sully said, that "agriculture is the breasts from which the State derives its support and nourishment." But it is also an art. Bacon defines an art as "the disposition or modification of things by human skill to answer the purposes intended." Arts depending upon the skill of the hands are called useful, sometimes trades; others, liberal or fine arts.

Now, it is plain that an art becomes more difficult in practice as its rules, and the contingencies which modify them, become more numerous.

Estimated according to this standard, agriculture tasks more subjects of knowledge, and covers a wider field in science than any other art or profession. There is scarcely a science that is not laid under tribute directly or indirectly. The physiology and pathology of brute-life; laws of heredity; effects of crossing on breeds; the laws of plant-life and the influence of heat, light and moisture on their growth; the best means for preservation of fruits and grains; the vexed question of the chemistry of the soils and their adaptation to particular crops; the preservation of forests and their influence on climate; such a practical knowledge of meteorology as to forecast the weather; some degree of skill in mechanics and an acquaintance with the laws of machinery; a clear understanding of the wants of his own and other countries and of the laws of trade; and beside all this, an intelligent perception of the structure and powers of the government in which every one bears his share; and finally the graces of general culture and the Christian courtesies which cover all else with a mantle of beauty.

Is this too broad? It can be reached in some degree by every farmer. Men have many times stepped from the furrow to the highest places in the State. Farmers have been called to the seat of chief executive, to lead armies, to wear the ermine, nay, to become the immovable wall of adamant against which despotism has been shattered.

The tillers of the soil constitute the conservative factor in all nations against sudden and rash changes. The owners of real estate are not likely to upset things generally or to run away. Let the reader ponder the items just stated, and he will agree with the writer that they are a fair outline of what a farmer should know and be to perform his duties.

Fortunately the different kinds of crops he needs to produce are comparatively few, and of these he can acquire exact knowledge.

Chemists have determined that every kernel of wheat contains from $\frac{50}{100}$ to $\frac{70}{100}$ of starch; $\frac{10}{100}$ to $\frac{20}{100}$ of gluten; and $\frac{3}{100}$ to $\frac{5}{100}$ of fatty matter. But what is starch? It is an organic body, the product of plant-life, and consists of carbon, hydrogen and oxygen. Carbon, as everybody knows, is found pure in the diamond, and impure in our mineral coals. Hydrogen and oxygen are always gases unless in combination with other bodies. Lately, both these and also nitrogen have been reduced to liquids by enormous pressure and low temperature. Oxygen and hydrogen, united chemically, form water. We breathe the oxygen and drink the water.

Gluten contains these bodies—carbon, hydrogen and oxygen, with the addition of nitrogen, which is also a gas, and constitutes about four-fifths of our atmosphere. By burning wheat the above bodies are driven off, leaving a small quantity of ashes. These consist of iron, 0.53 per cent.; silex, 1.92; lime, 3.02; magnesia, 13.58; phosphoric acid, 45.44; potash, 24.18; soda, 10.34. About 60 pounds of the above are taken from the soil of every acre by a crop of wheat.

This may seem a small amount to be removed from the soil, but it is large in the aggregate, amounting to 60,000 pounds for 100 acres. Besides, the entire absence of any one would make the crop defective. It is not easy always to determine what the exact defect is in the soil, yet some simple and inexpensive experiments may settle the question. This is far better than to dose the land with everything plants need in order to make sure. This is like the physician who, despairing to learn the disease of his patient, gave a mixture of all his saddle-bags contained, feeling certain that such a scattering fire would hit. A knowledge of the relative amount of clay, lime, sand, and vegetable matter in the soil is readily acquired, and is invaluable to the farmer.

There are some contingencies he cannot supply, as rain, light and heat, yet these generally will not fail. In all things he must work in faith. The perfection of agriculture will be reached, as far as man's power is concerned, when he has learned: 1st, what plants require; 2d, the exact nature of any soil; and 3d, to be able to supply the deficiencies at the least cost. I have no doubt the time will come when the knowledge of these three great underlying principles and their application, will become far more certain and perfect than now.

The chemist, natural philosopher, botanist, astronomer, zoologist, and meteorologist are affording means to settle the question how to cultivate the soil to the best advantage. Let me call special attention to a few topics: I. Some knowledge of plants, their classification and laws of growth, is as necessary to the farmer as physiology is to the physician. Without these, both are quacks in their way. They may by clever shrewdness succeed now and then, but alas! for the bodies and the soils on which they practice. The life of both is oftener sacrificed than saved; or if saved a sickly body and poverty-stricken soil testify against them. Thousands of square miles in Delaware, Maryland, Virginia and other States bear witness to the malpractice of the early colonists. Cultivation by slaves - a barbarian husbandry—smote the teeming soil with barrenness.

A farmer who is a botanist, acquires a love for plants akin to that for his animals. How reluctantly would he lay the axe to a tree that had kindly stretched out its branches over his head for a generation. It has grown up with his children, and it seems ungrateful to cut it down. Farmer, stay the axe; the tree you are planning to destroy cannot be replaced till your sons and their sons have, like it, changed to dust. The destruction of our noble forests is going on with a recklessness more befitting vandals than a Christian people. Make haste slowly in felling the forests, lest the earth, dried and scorched in its nakedness, turns at last its bald old head to the sun and mourns the loss of its leafy treasures. Attila, "the scourge of God," when he overran the Roman world in the 5th century, boasted that grass never grew where his horse had trod. So an ignorant husbandry may have the garden of Eden in front, but will leave it behind like the ashes of a volcano.

II. Self-interest, if no higher motive, should prompt a farmer to study the nature of the animals he expects to raise. Animals, that are our servants for work and victims for food, deserve kind treatment. As they cannot express their wants and their pains, so much the more should man exercise his higher wisdom to detect and relieve them. Epidemics, of which we know neither the origin nor cure, may destroy fortunes in a few days. The insect tribes, the most insignificant and numerous of animals, hold us at their mercy. At present we cannot stop their multiplication nor arrest their flight. We have not yet learned to cherish and protect some classes of animals to fight our battles with others. The birds diminish with our forests, but worms and bugs increase. Here are fields of study for specialists to enter with profit to themselves and others. Our government is on the right track in sending experts into the locust fields of the West.

III. I will briefly notice a third topic intimately related to success in farming. I mean all those influences, which, taken together, constitute climate. This embraces many topics, as the atmosphere and its agencies, its prevalent currents, its moisture, rain, hail, snow, frost, heat, light and electricity. These, man cannot control, but he can often adjust wisely his own operations to them. There are critical periods in a farmer's work where a knowledge of the kind of weather two or three days in advance would save him from disappointment and loss. To cut ten acres of wheat to be exposed for days to scalding showers and scorching sun, may reduce the grain to second or third-rate. The crop may pay the expense of cultivation, but leaves no margin for profit. Changes in the weather are governed by fixed laws, partially understood. Most of our great storms in the Mississippi valley come from the West or Southwest in summer, and sometimes across the mountains from the Pacific. Their general course is eastward, and the telegraph reports to the signal office may give notice of their approach several days before they reach Ohio. Their path cannot be exactly located, for its direction and breadth may change. A low barometer, and still falling, with wind from the east, indicates an approaching storm from a westerly direction. Generally the air moves towards the region where the barometer is lowest, and that will be the centre of the storm. Our storms usually move with our great atmospheric currents, and in fact are local disturbances in those currents.

These important facts enable us to predict their progress, approximately. But there is another class of storms common in the hot season, which are more local, more sudden in their origin and shorter in duration. The air may, from some cause, become hotter over a certain region, and, being thus made lighter, is pressed upwards by the colder air. It expands as it ascends and the vapor is precipitated. These storms may become very violent and sweep onward many miles. They are generally thunder storms, and sometimes become tornadoes.

Again, a cold wave from the North or Northwest may drive back or slide underneath a warm and moist atmosphere, and where they meet and mix, rain and perhaps hail or snow may occur. The great cyclones along our eastern coast, and in the Indian Ocean, do not differ in principle from our extended inland storms, but they are grand specimens of the awfully destructive power lodged in our atmosphere. The cyclone of October, 1866, in the Bay of Bengal, drove the ocean inward many miles along the low lands among the mouths of the Ganges, and destroyed more than forty thousand lives.

There are observations in progress by scientists which are of special interest to the farmer.

There is some evidence of regular changes in the sun's temperature running through a period of about eleven years. The same period seems to include the increase and decrease of the spots on the sun, of the aurora borealis, and of magnetic perturbations in the earth. The two latter must be classed with electric influences, and these are potent factors in connection with the weather. It would be rash to speak positively on these yet unfinished investigations; but it will be strange if their value does not exceed present expectations.

We can never tell immediately what the value of any discovery is to be. The lifting of the lid of the tea-kettle awakened thoughts which gave to the world the steam engine; and Faraday's discovery less than fifty years ago, that a magnet would produce an electric current in a coil of wire, now appears in dazzling splendor in the electric light. Our knowledge of to-day literally fails to tell us "what shall be on the morrow." When we know more of nature's moods, her periods of turbulence and calm, her heat and cold, her sunshine and shower, we can, with wise forethought, yield to Her ordainings and reap the reward of obedience. God's Book of Nature is always open and at our service.

Let me here call attention to the work of the Signal Bureau. Its extensive observations and accumulation of facts will yet make clear many of the mysteries of the weather. The value of the work now done and doing is hardly understood by the wisest. Time will show it to be of incalculable worth to agriculture and commerce. Foreign nations are already complimenting us on our system of weather reports.

To perfect it let the State take up the duty of circulating the weather bulletins as far as possible, and especially in the agricultural districts.

They could be sent by post, by railroads, and telegraph to important points in the counties, where farmers in the vicinity could send when they desire the information.

Extra efforts could be provided for, to include the critical periods of farm work. This wide distribution of the daily bulletins, beginning early in May and ending some time in August, would answer all the purposes of the farmer. Our commercial ports are already supplied by telegraph. The signal office reports must of necessity be general and applicable to large districts. To state the probability of rain in the Ohio valley or the lake region is, if taken alone, altogether too general to excite fear or hope. If the farmer has learned the effect of coming storms on the barometer, he can tell with great probability whether it will rain in his district. Every farmer should have a barometer. It need not be expensive. Let him consult it at stated hours, three times daily, and note the clouds and direction of the wind, and the accounts of storms in the papers. He will soon become weather-wise with good reasons to back him. Keep a good thermometer, and record marked degrees of heat or cold. These little attentions to nature will become a source of pleasure as well as profit. The weather has already ceased to be the type of fickleness. It may disappoint our expectations, but it has method in its moods as well as in its madness. It is too closely related in many ways to our welfare to be neglected. The grandeur of its operations in the aggregate is not seen, because they are common and we are thoughtless.

The arrangements for supplying the earth with water are on a gigantic scale. The sun is the great agent for this purpose. Its heat evaporates the water from the surface of the earth, and the winds—themselves produced by heat—carry it everywhere, and it falls to the earth in rain, hail and snow. The annual rain-fall of Ohio is from 40 to 42 inches. This is equal to 4,040 tons per acre, or 404,000 tons on 100 acres. To carry this on to a farm of the above size at the rate of 10 tons a day would require 40,400 days, or 110 years and 250 days!! Increase this amount by about one half, and extend it to the whole earth, and you have the water supply of the globe. The water that falls on your farm would, as a mechanical power, do far more than all your work. The mechanical power of Niagara Falls is equal to one-fourth the steam power of the world. All the rivers of the earth taken together discharge about 146 times as much as Niagara. All the water poured through them into the ocean has been evaporated by the heat of the sun. One can get from this some idea of the enormous power expended on the earth by the sun for this single purpose. The great rivers that move with such irresistible power to the ocean, have their counter currents above us, sweeping over the plains, running up the valleys, and above the mountains.

The sky itself is an ocean of vapor! The immense force exerted by the sun in producing the vapor on each acre is estimated, by engineers, to be equal to the constant action of a thirty-horse-power engine.

IV. Invention always follows discoveries in science. The attention devoted to scientific studies during the last half century has been the stimulus to the remarkable inventions of the present age. Two things have characterized the age -first, the rapid transmission of thought by telegraph, and of persons and commercial products by railroad; and second, the construction of labor-saving machines. We can reach a point in one day which once required five, and can transact business at a distance in an hour which, fifty years ago, consumed weeks.

Equal facilities have multiplied to save time and strength in doing farm-work. This has not been accomplished by any one set of men. The scientist, in his study, has wrought out problems for the construction of machines so as to secure the greatest strength with the least material, and the highest saving of power. The inventor conceives the machine with all its parts and adjustment to do a certain work. The skilled mechanic expresses that conception in wood and iron, and the machine is ready for duty. As late as the beginning of the last century, eight to ten horses were used in Scotland to draw one plow, and two men to manage it. Now, the light iron plow, with its graceful curves and polished surface, does the same work with one man and two horses. Suppose a farmer of the olden time to come back to earth. What would he think of the ease and rapidity with which the soil is now prepared for the seed? How astonished, as he watches the rapid progress of the reaper, hears the quick strokes of its keen blades, and sees the waving grain disappear, as if swept by the surging fire! The stroke of the flail and the panting of the strong man have ceased, but he hears the clatter of the thresher, the buzz of its wheels, and sees the sheaves disappear, as if by magic, in its insatiable throat. A thousand straw-cutters chop the straw into dainty bits; and the little giant eats the cob together with the corn.

The boy rides his rake, thinks of his sweet-heart and whistles, "Coming Through the Rye," while the grass is left in long wind-rows.

Horses can sow and plant as well as reap; steam will thresh the grain and saw the wood, and dogs churn the butter. The curs are at last made to earn their living and to bark less. Now, let this ancient farmer enter a store for furnishing modern implements of husbandry. Could he believe that the implements so beautifully wrought in metal, and polished, and wood-work painted and varnished, were intended for use? Some of them look a little like the uncouth things he once employed, but these must be made for show. And when told that the cost of these highly-finished articles is much less than the old clumsy ones, would he not shake his head incredulously, doubtful whether he was in the old world he once knew.

What I have stated thus far, pertains only to the professional life of the farmer, and even this needs varied and close observation, and sound judgment.

V. But for success in his calling he must know more than its mere details. The needs of other countries, their products, the laws of trade, and the tricks of bulls and bears must be understood, or he will be wheedled out of his hard-earned gains.

But, were I to close here, I should stop far short of what I suppose to be the mission of a farmer. No class of our population is so fixed in character and locality, and its influence will be proportionally greater. There is the strongest motive to make the society around him intelligent, refined, and religious. Upon these conditions depend the security of his property and the value of his lands. Material and moral values are often convertible terms. Pestilential men in a neighborhood are worse than marshes and fevers. Farmers would often make money by hiring certain lewd fellows, of the baser sort, to go West, or, better still, to the moon. The erection of a church or a school-house might convert some or scare them away.

Thoroughly educate the farmer in early manhood, and he will be foremost in every good work. Gray hairs and tottering footsteps will find him strong for truth and strong in his God. And how gloriously would such a patriarch sink to rest! Where he was born and where he has lived, there he dies. In the midst of the few survivors of his early life, and of the youth who have been led by his example to the highest culture, he falls asleep. Reverently they carry his remains to the narrow house, and mourn that a great and good man has fallen. Such men there are, thank God, fixed with their descendants on the soil. I wish there were more. No men are more interested in having good laws. You must help make them. Woe to the day! when legislators are made up exclusively of any one class. Let the farmer qualify himself to do all his country requires to be done, and he will be called for when needed. No secret clique will be necessary to nominate him for office; nor will he be required to do the indecent work of running from pillar to post to blow his own trumpet. Honors thus sought cease to be such to those who wear them. But if, without your own solicitations, you are selected by the suffrages of your peers, then in God's name take it frankly; nay, you may do it proudly, for Providence calls you to duty. Fulfill it in God's fear, and you will shed lustre on the office. To you it can add nothing, for you have, within, a higher nobility than office can give.

The farming class is larger than any other single class, and being conservative from necessity, they are more likely to be right on any great moral or political question. They may move slowly, but if intelligent and religious they will be right in the end. There are two great difficulties in the way of self-government—first, the want of intelligence and morals in the masses, exposing them to be led astray and used as tools by the corrupt and designing; and second, the difficulty of inducing men to take such an interest in public affairs as shall call forth action. The mind of the nation, guided by a moral standard, must be active to secure national health. We fear nothing so much as intellectual and moral stagnation. Such a stagnation cannot take place, except there come a rottenness in national character. Then to lie still is death, and to agitate is also death. The latter is only stirring up the fetid pool and scattering its poison. A nation can escape from this condition only by running a desperate gantlet through the fire, and then its burns may smart for a century.

I have stated, fellow-citizens, a few points in reference to what a farmer should know and be, in order to fulfill his mission in this great nation. Into details I could not enter, without taxing unduly your patience. Let me sum all up in a single sentence: *Acquire all the knowledge needful for your profession, add to it the culture which will give grace and purity to the family and to social life; uphold, by your living example, a simple and pure Christianity, and your power for good will be irresistible. No nation can decline, while a large class of its citizens sustain, like pillows of jasper, its superstructure.*

OHIO FARMS AND HOMES.

By Secretary W. I. Chamberlain.

It was Daniel Webster, I think, who gave his native State the somewhat doubtful compliment of saying that New Hampshire was a grand State—*to emigrate from;* and Dr. O. W. Holmes, not less wittily says that "Boston is a good place to be born in, for," he adds, with a sly drive at its transcendental religionists, "the man who is once born in Boston doesn't have to be born again!"

And so, with less wit but larger loyalty to my own State, I take as the text or motto for this address, Ohio is a grand old State not to be born in or emigrate from, but *to live in,* for the farmer who is once born here need never move to another State to live. And yet the tide of emigration has often surged high within our borders. There is a spirit of unrest inborn in the American people, and special causes have tended to increase it. The display, for instance, of grains, fruits and vegetables from Kansas at the Centennial was truly remarkable and most inviting, and the Kansas State Board of Agriculture under its most able secretary, Alfred Gray, at whose recent death not Kansas farmers alone, but those of the whole Nation mourned—the State Board of Kansas, I say, under his able leadership, became in reality a Board of Immigration, and united with the railways of the State in inducing immigrants to come within her borders. The same essentially was also true in many of the western States and Territories. Our fair State of Ohio has been flooded with an all pervasive advertising literature, and with agents who would fain make us believe that there are fairer skies, and purer air, and softer and more balmy breezes, and better fields on towards the setting sun. And so it has sometimes seemed to me that the Ohio State Board of Agriculture might well become like that of Massachusetts, in part at least, an anti-emigration society; and that their secretary might well, in an address like the present, raise the question whether it is not still true that "Distance lends enchantment to the view;" whether we do not overlook advantages beneath our very hands and eyes in reaching far on for others; whether it is wise for an Ohio farmer out of debt, or with a reasonable prospect of getting out, to sell his farm, follow Horace Greely's advice and "Go west, young man."

Now God forbid that I should speak depreciatingly of the fair skies and fertile plains and prairies of the Great West. The skies are bright, the fields are fertile, the expanse is almost boundless. The broad and fertile plains and prairies are a priceless heritage, a mine of untold wealth and deep fertility stored up by a wise Providence in the countless ages of the past. They shall yet furnish happy homes for countless millions that shall even in the near future people our great country. But these homes should be for those who have not good farms and homes elsewhere. For I may truly say that there are many disadvantages and drawbacks in the West; and I may justly point them out to farmers comfortably settled in Ohio, since the railways and the advertisements, and the agents never will. I may truly say that not all the good gifts have been bestowed on the West and none on Ohio. Yes, I may further even claim that a greater number of agricultural, climatic, mineral and other advantages are enjoyed in Ohio than in almost any other State east or west.

In the old Roman fable, as you remember, the peacock complained to the Goddess Venus, his mistress, that the nightingale, a bird so far inferior in point of beauty, should have been given a sweeter voice than himself. But the Goddess replied, "It would not be fair or right to bestow all the good gifts on a single individual." Now this rule, it seems to me, has been followed in dealing out advantages to the different portions of our own land. No one part has everything. New England is rock-ribbed and barren; rugged, but glorious in beauty and scenery; fertile in stalwart men, if not in corn and wine. The broad West is rich in fertility, but not in landscapes nor in invigorating breezes or an inspiring climate. But Ohio stands midway between the two—the golden gate between the East and all-bounteous West, and shares the richest gifts of both. It is, I think, a golden mean between the rocky glory of New England and the vast fertility of the Great West.

Some two thousand years ago, Herodotus, the great Grecian historian, represents the wise Solon as saying: "No one country or region possesses all agricultural advantages or bears all the products of nature, but has one and lacks another. And that land should be deemed most fortunate that produces most of the things necessary to the comfort and well-being of man"*. This rule you will agree is a wise one, and I claim that, judged by it, Ohio is one of the best States in the land. All the animals, grains, grasses, fruits and vegetables of the temperate zone grow, yes, thrive in almost every county in the State. Ohio more, I think, than any other State, is adapted to an almost universal agriculture, while nearly every industry adds its busy hum to our life and wealth.

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* Quoted from memory.

Springs gush from our hill-sides, and brooks course through our valleys to slake with their pure waters the thirst of man and beast, and to turn the wheels of our manifold industries. Timber covers our plains and slopes; coal, in vast beds, underlies a large portion of our area; iron, salt and petroleum add to our wealth; the finest building-stone is found in almost every county, and gravel and stone for roads, bridges and foundations abound in almost every school district. Lime for fertilizing and building purposes, and sand and the best brick material, and stone and timber for bridges, foundations and superstructures, are all here, and well distributed over the St te without distant and expensive transportation. Our rivers and our lake are a highway for our commerce, while the latter with its fine clear breezes wafts health through all our northern hills and valleys. How great the contrast in many of these respects with most of our great Western States. Last summer I took, as some of you know, a somewhat extended tour in the West, and was all the time impressed with some of these considerations. I traveled for seven weeks almost continuously, chiefly by rail and by daylight, over some 8,000 miles of space in thirteen different States and Territories, visiting many of the best farms and herds, and agricultural colleges and agricultural secretaries, and conversing with many of the most enthusiastic farmers of the West. I had a splendid time, was most courteously treated by railway officers and furnished free transportation wherever I could find time or desire to go in the prosecution of my researches. I was cordially treated and hospitably entertained by many wholesouled people. I didn't get homesick once, and could not bring up an evil report of the land I went to see, but not to spy out, if I should try. And yet, I must say, that I returned home fully satisfied—as the good old hymn has it—"to spend the remnant of my days" in this same grand old State of Ohio. But while I desire to speak fairly, and "nothing extenuate, nor set down aught in malice," yet I am conscious of two facts, which I frankly state:

First, that my knowledge of the Great West is mainly basedupon a single though extended tour, and on previous and subsequent reading.

Second, that I am a loving citizen of Ohio, and hence, not wholly impartial in judgment.

With this frank admission and warning, let us together compare, for example, Illinois with Ohio, not adversely nor in the spirit of unfriendly criticism or rivalry, but of investigation. Illinois is a rich State agriculturally. I do not believe the sun shines elsewhere on so large a solid and continuous body of arable land so rich, of such almost exhaustless fertility, and blessed with so fine an agricultural climate. I do not now speak of the healthfulness of the climate. I traversed and retraversed the State lengthwise and crosswise and diagonally.

> "And still I gazed and still the wonder grew,"
> At all the wealth spread out before the view.

The whole State seemed one vast field of waving corn. In many localities, for miles, probably 80 per cent. of the whole area was covered with this crop alone. I stood one day in company with John D. Gillette, the prince of Illinois cattle feeders, in the observatory of his house in Elkhart, and beheld an expanse of agricultural wealth hard to describe or imagine. His house stands on a sugar-loaf hill some two hundred feet high—a rare thing in level Illinois. Plainly seen in the distance, twenty miles away, the great dome of the State House rose in unmistakable grandeur to an altitude of more than three hundred feet; and all between waved the dark green maize, field on field, and mile on mile in solid phalanx; division fences obliterated, farm blending in farm; with only here and there a solitary square of golden wheat or other grain to break the almost tiresome monotony! In the foreground were Mr. Gillette's herds of over three thousand of the finest fat cattle and breeding cows and calves almost in the world. More than a hundred thousand acres of waving corn were in full sight, and cattle and swine, all fat and flourishing. For cattle, corn and swine, Illinois is queen of States. What then does Illinois lack?

First, I should say that it lacks healthfulness. The State is too level, damp, rich and hot to be entirely healthful for man or beast, or even vegetables. It lacks Ohio's lakes and breezes, brooks, forests and hills; and when one seeks a home, as well as a farm, the matter of health is not an unimportant item of the account. We all know the sad history of chills, fever, wan faces and broken constitutions that followed the early settlement of Illinois. True, as the State grows and drainage and cultivation increase, health improves; and it is true, too, we have had ague in Ohio, but Illinois is yet far from being a healthy State. All along the line of the Central Railroad men acknowledged both by their countenance and their words, the existence still of malaria and the depressing influence of the climate. Yes, the very buildings, fences and surroundings told the same tale. Nor is ill-health and terrible disease confined to man. Soon after my return to Ohio (in September) I had letters from there, giving accounts of the terrible ravages of cholera among the swine. Some splendid herds that I saw when there, my friend writes me, were in a few days almost totally annihilated, and might, as far as the loss was concerned, just as well have been possessed of the devil—like those of old—and rushed violently down a steep place into the sea and perished in the waters. The drouth had dried up the water supply; there are no perennial springs as in Ohio, or brooks winding through every township; and this fact aggravates if it does not cause the cholera. I know our Ohio hogs have it, but only one-third as much by the statistics as in Illinois. It is "nice" to have section on section, and township after township of solid fields of corn. But if you do, you can not have hills, forests, cool springs, running brooks, pleasing landscapes and abounding health as in Ohio. "It wouldn't be right," said the Goddess, "to bestow all the good gifts on a single individual."

Again, on the flat and often very wet and black prairie soil the sheep are not so healthy. They are more liable to many diseases, especially the foot-rot, than on the rolling, gravelly land of old Stark, Wayne, Knox or the river counties of this State; and statistics give Ohio six times as much wool as Illinois. Nor is dairying so profitable or even possible except in a small northern portion of the State of Illinois. S. Straight & Son, Hudson, O., make (1879) nearly one-third as much cheese as Illinois.

Again, not only are men and animals less healthy than in Ohio, but even the crops are more subject to disease and disaster. Wheat raising is almost abandoned in the northern half of the State. Fall wheat winter-kills, and spring wheat is ruined by chinchbugs, and these pests destroy not only the wheat, which seems to bring them, but other crops as well. And so the farmers told me they believed they must abandon wheat entirely in the northern part of the State. Still the southern half usually grows good wheat crops. Fruit trees, too, seem unhealthy, this year, at least. Their growth is too luxuriant and the air too humid. I saw, this summer, thousands of bushels of fine red cherries prematurely rotting on the trees, and a cousin of mine, a widow lady, near Chicago, who expected to sell some bushels from her small orchard, sold none and canned four quarts, and the rest rotted before ripening. The apple-trees, too, all over the State, were completely covered with twig blight of a very serious kind, which seems likely to destroy the trees in the black soil counties. I saw more apple-tree blight in a single township there than I ever saw in the whole State of Ohio before or since. Still apples thrive in some localities, but not everywhere as in Ohio. Again, Illinois is more at the mercy of the weather, so to speak, than Ohio, more subject to tornados and to extremes of wetness and dryness, and more injured by both. When I entered the State, July 1, the eastern part was almost deluged; all the way from Chicago to Cairo, 356 miles or so, large portions of many of the cornfields had standing water between the rows, weeds were rampant, cultivation was suspended, and wheat was sprouting in the shock. But the same rains in Ohio would not have suspended cultivation on the rolling, sandy loam of large portions of our State. Yet the stand of corn was fine all through the central and western portion of the State, and the promise of a heavy crop was deemed almost sure. But when I returned from the remote west August 1, the corn was already suffering from drouth, and private letters and the public prints show there has not been more than two-thirds of a crop of corn, and that Illinois has suffered as Ohio never did and never could with an abundance of rain, as they had it, up to July 15. Our land seems to stand drouth better, strange as it may seem, than the deep, black, porous soil of our fertile sister State.

Take another item—roads and bridges. Little do we in Ohio think how great a blessing are good roads in winter. Illinois has usually an immense corn crop to husk late in the season and transport to market. And yet, in a mild, damp fall and winter, like those of 1879, there is practically a blockade for five or six months. There is no limit to the depth of the mud. The light, black soil is three feet deep and easily soaked into a quagmire. Both fields and highways are impassable unless frozen, and husking and marketing are suspended. The water does not run off as in most parts of rolling Ohio, but soaks in and stays. An Illinois man told me his neighbor got out of flour in a muddy time, and uncoupled his wagon, lashed two bags (four bushels) of wheat to the front axle, hitched on four horses, and went to mill; and a tired set they all were when they got back – wheels and all! Some of the most intelligent farmers in Illinois told me the problem of roads for six months each year was one they could not solve or grapple with. They cannot macadamize like us, for they have no stone. They cannot gravel as we do in every school or road district in Ohio, for there is no gravel save in a very few river localities. They cannot make plank roads as on the main Ohio thoroughfares of old, for there is no timber on the vast prairies. And so in winter, while we in Ohio are drawing our varied products to market on our solid stone or gravel turnpikes, (south and west part of State especially), they are simply and literally blockaded —stuck in the mud. It is a great misfortune. Even light travel is suspended. A friend of mine visiting the city of Bloomington, Illinois, could not for love or money hire a livery "rig" or even horse to go ten miles into the country, but had to stump it in rubber boots, a mile and a half an hour—*and a foot and a half deep!*

But I would not speak ill of Illinois. The resources of her soil are almost boundless. Her fertility is so amazing, and tillage is so easy, and so large a percentage of her total area is arable, that her farmers can thrive in spite of these and other drawbacks. They can raise enough in the summer to afford to lie still in the winter. But for *a home*, give me Ohio, with her soil sufficiently rich, and adapted to every kind of agriculture and horticulture, with her undulating surface, her scenery, varied with hill and valley, and stream and lakelet, her healthful climate, her springs, brooks, forests, lakes, creeks, rivers, waterfalls, and powers; her quarries and gravel beds; her thousands of miles of stone and gravel roads; her coal and iron mines with the industries and wealth they bring. Give me Ohio with her vineyards, orchards ard grainfields; her dairies and sheep fields; her diversified and manifold agriculture; her home markets; her labor and of the farm well divided and distributed through all the seasons of the year. Yes, for a home give me our own Ohio.

I have spoken particularly of Illinois, but the same is essentially true in different forms of many of the great Western States and Territories. There are many and great special advantages, but also many and serious drawbacks and disadvantages in most of them. Missouri is a fine State in many respects, but the deep rut of prejudice and ignorance in which she moves, and the intolerance of many of her people, make the immigrants pass through her borders to the freer air and better institutions of Kansas. If I may be pardoned the Irish bull, I should say people will never live where they cannot breathe. And this is true socially, politically, and morally as well as physically; and they can breathe in Kansas. But Kansas—baptized in blood, scourged with drouth and famine, and with myriads of grasshoppers and other pests and disasters. What shall I say of Kansas? Now she pours the rich gifts of plenty and of agricultural wealth into the rejoicing hands of eager settlers, and now the siroccos of the South, those fierce, pitiless, and scorching winds, sweep for weeks and months over the withering crops, bring dismay to the hearts of the ill-equipped and ill-provisioned settlers, and send them disheartened to their former homes in the East. Every white-covered emigrant's wagon I saw this year in Western Kansas was *headed towards the East.* Still, I doubt not there is a bright future for Kansas. Her citizens are temperate, moral and enterprising. Her laws are fair, wise and liberal. The school-house and college go hand in hand with the church in establishing and increasing the intelligence of her inhabitants. She is the home of the free, the temperate, the honest and the brave. Before the solid march, too, of settlement and the fuller cultivation of the soil, and the increase of crops and of actual leaf surface, the dews and rains of heaven will increase by a well-known meteorological law, (to him that hath [and useth] shall be given), and drouth, disaster, and famine will retreat further and further towards the setting sun. The "Great American Desert" shall yet "bud and blossom as the rose." But for the present there are many and bitter trials and disappointments for the new settlers. Let no one go who has not both the courage and the means to meet them.

Or look for a moment at Dakota, rich in promise. Millions of acres of prairie soil, the finest wheat land in the world, wait but the plowshare to make the whole expanse wave with golden grain. Soil and climate seem to conspire to make Dakota the future wheat field of the world. Rust, chinch bugs, weevil, grasshoppers, and drouth, have not, as yet, found their way at least into Northern Dakota. And the expanse is boundless. Some people seem to fear that Dalrymple and the Grandins and the Messrs. Cass and Cheeney have monopolized all the good wheat land in the Territory.

True, they have a good-sized farm. Their combined estate is 75,000 acres, 25,000 this year being in wheat. But their land is a mere speck on the map of Dakota. Their territory would make about four or five Ohio townships, and there is enough more land just as good apparently, in the territory to make about two States as large as Ohio. Plainly, "Uncle Sam is rich enough to give us all a farm." But the Ohio farm-owner should think twice before he leaves the manifold agriculture, and the abounding luxuries, and the varied wealth and comfort of our fair State for the special attractions of an exclusive wheat region. For thus far wheat is almost the sole paying crop at least in Northern Dakota. The climate is really too cold for corn, except the early sorts. Illinois, Iowa, Kansas and Nebraska must raise the corn, and Dakota the wheat. Oats, potatoes and vegetables yield well, but long freights to market swallow all the profits. Fruit, it seems, must always be imported. The long winters are too severe for apples, pears, peaches, grapes and the like, and for berries. Think of it, men of Ohio, who sit under your own vine and fruit-tree, and pluck the fruit fresh and luscious from the boughs—think of a winter that freezes all such things dead past all hope of resurrection. Think of a winter that locks in its iron-grasp all vegetation from October or early November till the days, when in Ohio, April showers have long since brought the May flowers. Think (before you sell out and move) of a winter of six months' duration, that suspends all agriculture and all farm operations, and all profitable employment of almost every kind, so that as Mr. Dalrymple, himself, said to me when

I asked him what farmers and laborers did in winter, and how they kept warm—said he, "They do as the woodchucks do, crawl into their holes and haul the holes in after them." Think of feeding your teams and men and yourselves for six months so as to get a "good ready" to work the other six. Think of paying $8 per cord for wood, and $13 per ton for soft coal, to keep you warm during that long and pleasant winter with the mercury often at fifty-eight degrees below zero, and as the old lady said, "it would have been a mighty sight colder if the thermometer had been any longer."

Decidedly then, while I freely admit the many special agricultural advantages of the Great West, I should not advise any well-to-do Ohio farmer to sell out and go. There is such a proverb as "Go further and fare worse" and many a man in the famine-stricken portions of Kansas and Nebraska has this year proved it a true proverb. And the cold of Dakota is too severe for the men of Ohio, both for health and comfort. Most of the present immigrants are coming from similar cold climates, Minnesota, Wisconsin, Canada, New England, Norway, Sweeden, and even Iceland. And they are not troubled, on arrival, with too mild and balmy a climate. Cheap lands, it is true, are a great temptation. But the cost of improvements, the value of social surroundings, of ready home markets and of nearness to the seabord should not be overlooked. In Indiana and Illinois and even in parts of Iowa and Wisconsin, lands as rich, and as well situated and improved, bring about as high a price as in Ohio. And, having traveled far and wide in all our Northern States, I have yet to find the spot where an equal investment in farm property will bring richer returns in net cash, in health, and in solid social and domestic comfort, than in most parts of this same good and fertile State of Ohio.

Having thus far sufficiently glorified Ohio and her agriculture, her farms and her homes, you will permit me to offer some suggestions—to ask and try to show how we may make Ohio agriculture better, her farms more productive, her homes more attractive. How shall we counteract the uneasy longing of our sons to enter the whirl of business excitement in our cities, or try their hands and seek their fortunes in the large, broader, more wasteful and exhaustive farming of the Great West. I do not mean that none of our sons should go. God knows if none of the pure blood, clean hearts, active minds, vigorous constitutions, and habits of industry and labor and study went from country to city, the cities would die. The leading professional and business men in our cities (a large part of them at least) laid the foundation of their success in the country and on the farm. But I mean our sons should not all, or so many of them, be anxious to go. How then, shall we ourselves learn and teach our sons St. Paul's lesson, "in whatsoever State we are therewith to be content." In general I should say, we shall secure these results *by not being content* with past or present attainments in Ohio agriculture. It was the same wise apostle I have just quoted who also said, "Leaving the things that are behind, I press" forward towards better things. We shall make our sons content to settle on our Ohio farms by showing them that we are by no means satisfied with past attainments in Ohio farming, and by helping them and getting them to help us attain to better results in the future. The past is creditable. The future may be far more so. Why should the father of two or three bright and active sons, who is also the owner of a quarter or half section of good Ohio land, encourage or even tolerate the idea that his sons must leave home to gain success in farming or in life. Business men, merchants, mechanics, manufacturers take their sons into partnership and enlarge their business. Why should not farmers do the same? Many of them are already doing so, especially among the best breeders of improved stock, the best nurserymen, fruitmen and even general farmers. Why should not the well-to-do Ohio farmer send at least one son to a good agricultural or other college, with the distinct understanding that he shall there have time and opportunity to learn whatever science can teach in advantage in agriculture—and it can teach immensely much—and then come home to use his knowledge in elevating the agriculture on the paternal farm. The father's experience in farming, and the son's scientific knowledge of the foundation principles of agriculture, would form the basis of the most successful partnership, and not then, as now, would fathers need to mourn that their sons have become fast young men in the city, or been swallowed up in the vast West, while the home farm, hewn from the forest by their strong right arm, improved and beautified by their life's work, and grown to be a part of their very life and being, has become a burden and a grief under the ruinous mismanagement of tenants or hired help. We are a roving set in America. The English love of locality and of home has had little development here. Farms and homes do not go down in the family as they should, improved, enriched, and beautified from generation to generation. Would it not be wise to cultivate this latter tendency in Ohio?

There is certainly no lack of room for our sons. From careful examination of facts and statistics, I am convinced, that by a better and more thorough system of agriculture, the amount and value of our Ohio products from farm, orchard, vineyard and garden may be doubled in the next ten years, and quadrupled in twenty. There has been great improvement during the past ten or fifteen years. Take for an example the eleven counties of the Western Reserve (usually called "Cheesedom") with which I am best acquainted. About three-fourths of the area is a stiff clay soil, of which Horsea Paul, Jr., in his prize essay on Summit County Agriculture, printed in our Annual Agricultural Report for 1867, summarily wrote as follows:

"The character of the soil (heavy clay) is such that grain growing can never be profitable, and it is seldom attempted." And again he says, and truly: "Much, if not most of the land, has never been plowed," and the general belief was that it never would be. But it is now found that this same heavy, tenacious, clayey soil, if properly tilled, and especially if well underdrained with tiles, is the best wheat land in the State, and that Ohio is for soil and climate second as a wheat growing State to no other in the Union. The eleven counties referred to above, which twelve years ago yielded only about one million bushels, and that from their more sandy portions, now yield about five million bushels annually. And this immense increase of four hundred per cent. was almost entirely from the clayey portion, where hardly a bushel was raised ten years ago. Nor do we find any decrease in other products; but an actual increase of fifty per cent. in cheese, and thirty-three per cent. in butter. Wool alone has diminished, chiefly because the dogs have not been compelled to pay for the mutton they have eaten and the damage they have done. So this immense increase of 4,000,000 bushels of wheat is almost a net gain, not to speak of gains in other products, grains, fruits, vegetables and the like. And similar gains have been made largely through almost the whole State. In 1880 Ohio gave us 52,500,000 bushels of wheat, a total, probably, surpassed by no other State.

No, our sons need not be crowded off into the cities or to the West by lack of room or remunerative employment. The number of farmers and the net total of farm products can be doubled in ten years by a better system of agriculture. For, the more of skillful toil we put upon the soil of mother earth, the more bountiful returns will she make us.

As a few hints to a better agriculture, I should say, we must clear more;—(not of solid forest, perhaps, but of scattering, dying, scrawny trees, rubbish and bushes)—fence less; plow more, and plow better; underdrain more land; till it better; enrich it more by the careful saving and proper use of all liquid and solid excrementitious and other fertilizing wastes of the farm and farm-houses; breed and keep more and better farm animals; and have better and more cheerful, and pleasant homes.

As I usually discuss most of these subjects quite fully in the lecture on "Fertilizers and Tillage," I pass them now with this simple enumeration, except the last, viz.: that in regard to our homes. And I beg leave to ask with all courtesy and earnestness, how can we make our farm-homes and farm-life better and more attractive, and thus help keep our sons and daughters from rushing off to the allurements of city life? I answer, by increasing in ourselves and in them thorough knowledge of our business, general intelligence, culture and real refinement.

The diversified farming of Ohio requires and develops intelligence. Let us see to it that we increase it in ourselves, and give to our sons and daughters the chance we never had to gain a broad and liberal culture, and that thorough knowledge of the natural sciences on which real success in agriculture rests. Both our sons and our daughters should be given some responsibility and share in the studies, labors and profits of the farm, even in childhood and youth. The health of our American country girls would be greatly improved by the responsibility and care of garden or poultry or bees, the heavy work being done by men under their direction. The sanitary arrangements about the farm-house and buildings should receive careful attention, too. Slop-drains, cess-pools, privy-vaults, pig-styes, stables and barn-yards should not be allowed to contaminate the air we breathe or the water we drink. The farm-home should be the healthiest of all places, and our children in such homes, with healthful and pleasant occupation, should be the brightest, healthiest and happiest children in the land. Again, the outside adornment of our homes deserves more attention. Your wives and mine like a closely-shaven lawn, with evergreens, flowers, gravel-walks, tidy fences in front, and well-kept kitchen garden in the rear. Their neighbors in the village have them. Why should not they?

Shall I venture on dangerous ground and say that many farmers might greatly improve in matters of etiquette and of personal neatness? How many farmers are willing to admit that they care less for their own than for their neighbors' wives and children. And yet one would sometimes believe such to be the case. The pleasant words and smiles are saved for them, while sometimes the rough and unpleasant side is shown at home. This is not, however, peculiar to farmers; but the lack of table neatness to which I am about to refer, I fear is: Your wives and mine like tasteful arrangements in doors as well as out. They like a neat and tidy house and a tasteful and well-arranged table, and I think they have a right to expect neatness in those who sit at meals, or in the house in the evening. And yet I have seen forehanded and even wealthy farmers with their hired men sit down at the table, with their wives and grown daughters, in a condition that would be an insult to any woman but their wives, and I should call it an insult to them. I have seen farmers in summer sit at the table dressed only in dirty shirts and overalls and stable-boots, with shirt-sleeves rolled up to shoulders, and bosoms half exposed, and the smell of the stable and of horse-sweat and man-sweat wafted on the balmy breeze! I know this is strong old Saxon language, but it simply states the facts. I know it is somewhat disgusting, but not half so much so as the thing it describes. Now, the ladies do not like such things. They simply endure them because it is the custom in some localities (not here, doubtless), and among some farmers—none of whom are present! But the ladies don't relish the horse-stable in the dining-room. They are like the fastidious boarder who said he liked hash and he liked hair, but he wanted them on separate plates! Now, farmers don't go to the table in that condition at a hotel, nor at a neighbor's house. Why should they habitually do so in their own houses? Are not their own wives and daughters as worthy of respect as others? Sometimes, perhaps, the wife, too, cares little for personal or household neatness, and then the case is hopeless; but I think this is not often true. I have lived with my own good wife for sixteen years on a farm, and we have both of us done much hard work, and much of the time she has been without hired help in the house, and with small children to care for. But I have never yet known her (and I am sure the same is true of very many farmers' wives), I say I have never known her to present herself at the table when she was not presentable. I don't mean dressed for party or opera, but neatly and suitably dressed, tidy, wholesome and clean. And until she disgusts me at table, or evenings, with frowsy hair, and dress all wash-tub suds, and "cross" as a fury, I shall not think I have either the legal or the moral right to insult her with discourteous words, or disgust her at table with stable-boots and dirty overalls or sleeves rolled up to shoulders. My men and boys, too, shall find time to doff overalls and dirty boots, and don slippers and clean coat and make themselves clean, tidy and respectable for meals and evenings. "Cleanliness and Godliness are near of kin," and courteous words are like oil to lubricate the machinery of life. A shrewd old Divine of long ago used to say, "Manners mayketh the manne." Let us help our good wives, too, about the evening amusements for the children while they are young. See that they have interesting and instructive books, (and such books abound now), and quiet games. If they are to play cards at all, let it be in our own parlors and with their parents, and not by stealth in the haymow with the hired man, and finally at the saloon, where they can drink between the bets and bet between the drinks. Still, I think we can quietly show them there are better games than euchre, and that music and books are better still. Let us give them a chance as they grow older, to attend concerts, lectures, suitable parties and places of entertainment, and let us know where they go, and go with them ourselves often. In short, let us heartily interest ourselves in the intellectual, æsthetic, social, moral and religious development of our children. It will not do to neglect these "little" things or call them nonsense. They are not little and they are not nonsense, for on them depends in great measure the future of our little ones. It takes an unusually bad child to break away from the restraints of a really cultivated and happy home and rush into immorality and crime. Our penitentiaries do not receive their recruits from such homes. Shall we say we cannot afford it? Well, Providence has given us a good land, where honest, well-directed labor will do more than put a roof over our heads, clothing upon our backs, and food within our stomachs. What shall we do with the surplus? Shall we give our sons and daughters a taste for books, music, rational amusement, interesting and useful study, or, begrudging the labor, care and expense of these, drive them from uninviting homes to the dangers of the city? Shall we add farm to farm by drudgery and stinginess, by overworking ourselves and our children, and thus drive them from us, and we in our old age be left to mourn their absence or their ruin? Rather shall we not foster and cherish them in cheerful, happy country homes, and give them a share, not in the labors, merely, but in the studies, plans, problems and profits of the farm and home, and then when gray hairs shall deck our brows, lean on their strong, kind arms for support.

The Ohio farms and homes are many of them good, pleasant and delightful now. Shall we not, all of us, long and strive to make them even better?

EVERGREENS FOR USE AND ORNAMENT.

By G. H. Miller, *of Norwich, Ohio.*

[Presented at the Barnesville Farmers' Institute.]

When poetic fancy would portray to us the place of bliss, it never fails to describe it as abounding in trees, whose foliage is perennial and ever green. Thus Milton, in his description of the Garden of Eden:

> "And overhead upgrew
> Insuperable heighth of loftiest shade,
> Cedar, and pine, and fir, and branching palm,
> A sylvan scene."

Thus the poet, Isaac Watts, sang:

> "Sweet fields beyond the swelling flood,
> Stand drest in living green."

When the sacred poet would describe the felicity of the righteous, he likens him to a tree "whose leaf also shall not wither," and says, "he shall grow like a Cedar in Lebanon." On the other hand, I now recall that line in the poet Dante's conception of hell, in which, referring to the vast forest that grew on one of the terraces of that funnel-shaped abyss, he says,

> "They had not foliage green, but of a dusky color."

Again he says,

> "In all that horrid wood was nothing green."

Were we to visit the treeless Sahara, where the ever-wearying gray desert sand gleams in the sunlight and tires the eye; where the plains are blistered by the scorching sun that has been looking down upon them for so many centuries; where there is no grass, no vines, no trees; no brooks, no lakes or rivers; we would come back with a higher appreciation of our own green fields and leafy forests.

But even here the bright vestments that deck our hills and valleys must be laid aside—stern winter comes and takes possession of the earth. Then when our deciduous trees are brown and bare, the evergreens seem to spring up like pyramids of green, with graceful outline, and aromatic breath, to challenge our admiration. And even in summer the evergreen looks like a cool shadow in contrast with the warmer tints of other trees and plants. The evergreen deserves to be called "a thing of beauty, and a joy forever." Because I do not speak of deciduous trees and shrubs, I would not have you infer that I underrate them. We cannot dispense with the blossoming of their buds, the ever-varying hues of their foliage, and the airy lightness of their graceful branches. We pass them simply because, in our subject, we are confined to evergreens.

And first, let us consider the value of evergreens as screens from the cold winds, that, in their raids across the country, do so much damage. True it is, the winds are of great consequence; we could not live without them. But every farmer knows, when he hears their fitful blasts beating on his unsheltered fields (especially in the very early spring), that his crops of wheat and clover are being injured by their incursion. Every farmer has also noticed that even the poor protection of an ordinary rail fence will make a manifest improvement in the crop, for the width of two or three rods next to it; and that a belt of timber to the westward or north-westward of an inclosure will often afford protection to a field of twenty to forty acres of winter wheat. Let us learn a lesson from these observations; let us provide protection by planting screens of evergreens to intercept these destroying winds.

In the prairie regions of the West and North-west, many intelligent cultivators have learned the value of such shelter belts. Wherever the cutting winds of winter sweep freely, exposed surfaces are injuriously affected in many ways. The snow, which should form a protecting mantle, is swept off into drifts, and the bare earth subjected to the action of the hardest frosts. Growing plants of grass and winter grain, after being heaved up by intense freezing, are beaten about, and actually torn out by the action of the strong winds.

Excessive evaporation of moisture is produced, and many plants and even newly-planted orchards are dried up by the blasts which, for several winter months, sweep over them. The average annual amount of damage to the wheat and clover crops for a series of years, has been estimated, by those competent to form an opinion, as equal to one-fifth the value of the crop.

The wheat crop in Ohio for 1880 was worth, in round numbers, $52,000,000, and the clover crop about $5,000,000, so that I think we may safely put down the annual loss of money in this State from this cause at $10,000,000, and I doubt not but in the Northern States the entire loss would amount to $100,000,000. This loss may (to a great extent) be avoided by planting belts of trees in such a direction as to afford the best shelter from prevailing winds. In a hilly county like this (Belmont), they may often be allowed to occupy a hill-side, the borders of a ravine, or other irregular surface that cannot be conveniently tilled. These belts need not be composed of evergreens exclusively. Indeed, where a future supply of timber is desirable, considerable space might be occupied by these belts, and trees valuable for timber largely planted. But by planting a single row of Norway Spruce, or Arbor Vitæ, one can, in a few years, have a living wall, impervious to the winds, affording a protection worth many times its cost. It is not my purpose to treat of modes of planting, but simply to call attention to the need of protection from the winds; but I will say that the primary cost of a row of evergreens would be less than that of the most ordinary fence. If our farmers would never let horses, cattle, or hogs leave the enclosures provided for them about the barns and sheds, and substitute rows of evergreens for most of their permanent fences, they would be largely profited by the change. In my own county (Muskingum) I find the average valuation of horses, cattle, mules, and hogs in each township, is about $47,000, and the value of the fences in a six miles square township (estimating at only 50 cents per rod), is about $100,000.

The interest on cost of these fences, at 6 per cent is	$6,000
Annual repairs as much more	6,000
Allowing a fence to last 20 years, the annual wear is	5,000
Making the cost per year	$17,000

So that a farmer must make over 36 per cent. clear on the stock protected, to pay for his fences.

I have left out sheep in the above estimate, because the evergreen screens that I advocate would give the necessary restraint to that kind of stock. If our farmers would consider these facts, and also that the same number of acres will sustain more stock in the yard than if they are allowed to wander over them; if they would consider the damage their crops sustain from exposure to the winds, they would begin to inquire into the propriety of dispensing with fences, and making their grounds ornamental by planting the screens to which I refer. If, to the northward and westward of our barns and cattle-yards, a belt of evergreens were established, would not the increased comfort and benefit to our stock repay us many fold; and how many residences do we see exposed to all the fury of the rough wintery tempests, where, if a few years ago a variety of evergreens had been planted in the direction whence come the prevailing storms, the inmates could now enjoy a "hiding place from the winds." Every gardener and nurseryman understands the great benefit to be derived from wind screens of evergreens, even when kept trimmed down to a moderate height. Some have estimated that within the shelter of these screens their crops have even averaged 50 per cent. more than in exposed situations. Although there is a difference of opinion among orchardists as to the amount of protection an orchard should have, yet I am convinced that a shield of tree-growth of some description is a necessary adjunct to successful fruit culture. The full force of our strong winds has power to damage our orchards in many ways. It injures the foliage, drops the fruit, breaks off limbs and buds, and in various other ways troubles the orchardist.

I would not recommend the surrounding of our orchards with wind screens, as that would prevent (what may be termed) the proper ventilation of the orchard, and cause an increase of fungoid diseases, and hinder the healthy development of fruit, but I would plant screens where they would break the force of the west and north-west winds, and if there are hollows running to the northward, I would plant clumps of evergreens in them, to prevent the currents of cold air that will, at times, be driven up them like the waters of the ocean into a bay. Observation also testifies to the ameliorating influence of evergreens distributed all through the orchard; and by planting in this way we imitate Nature, as she protects her tender plants by placing contiguous some hardy grower as a screen. Is it not time that we should candidly consider the propriety of providing a substitute for the protection formerly furnished by the grand old forests, now, alas! so rapidly disappearing?

But the evergreen is also an essential element in the ornamental planting, by which we seek to beautify our homes. For ornamental purposes evergreens should be planted in considerable variety, as, in their different forms and tints of foliage, they contrast with and show each other off, and thus by massing their attractions beautify the landscape. And here I cannot help saying, we must use deciduous trees, shrubs and flowers in connection with our evergreens, not in a confused and meaningless jumble, but arranged so as to bring out the striking effects of color, form, light, shadow, etc., and thus produce a perspective pleasant to the eye. I do not presume to attempt to give specific directions for the arrangement of trees upon the lawn; nor do I think any landscape gardener competent to give such directions, without first inspecting the grounds to be decorated. I might, however, give one general rule as a remedy for the mistake so often made of planting a tree in the wrong place, or of crowding too many in a small space; that is, when about to plant a tree, always form a picture in your mind of what your tree will be, after it is fully developed, by a growth of a score or more of years. The observance of this rule would certainly prevent such a blunder in planting, as I recently observed in a village door-yard about ten feet in width, in front of a residence occupied by a President of a college, where (perhaps influenced by the proverbially glib tongue of the tree-peddler) he had planted two Austrian pines, one on either side of the walk to his front door. The only exception to this rule would be, to allow the man who had nerve enough to transplant or cut down his trees, when their increased growth rendered it necessary, to plant more closely for immediate effect. It is the duty of every one to beautify his grounds, so as to give his habitation as Eden-like an appearance as possible. The associations with the beauty of trees about our country homes enter deeply into the best elements of our nature, and strengthen our attachment to them.

The lesser towns and villages of our country owe more of their charms and interest to the trees and shrubs which embellish their grounds, squares and streets, than to any ostentatious display of brick and mortar. And even in an economical point of view, ornamental planting may be looked upon as an investment that will pay as good a rate of interest as money put out in any other form. If you wish to secure a fancy price for anything, it is essential that you make it appear attractive; or in other words, *you must catch the eye* of the purchaser. This is thoroughly understood in every other business, especially by the merchant and manufacturer. There is no more certain mode of making real estate desirable than by judicious ornamental planting. Properly managed, the moment the planting is finished, a value has been added to it that many times exceeds the cost of trees and labor, and this value is increased as each successive year adds to their size and beauty.

I shall not weary your patience by giving a technical description of a long list of varieties, but simply call your attention to a few of the most desirable and most easily obtained. Of the varieties suitable for large grounds, you are all familiar with the Norway spruce, the Austrian pine and the Scotch fir, all of which grow rapidly and are patient of pruning when necessary. Then we have the graceful Hemlock, a native of our own country, and succeeding best when planted among other trees, and which will also bear pruning to any extent. As suitable for positions where more room can be given, we have the White Pine, rich, feathery and majestic, the music of whose leaves gives a charm possessed by no other tree. Among those that attain to large size, but are not so well known, I would name the Nordmann Fir, a tree with a royal aspect, a close, compact habit, and a rich dark, glossy green color; the Noble Fir, of California, with a very marked blue tint, of slow growth, but very imposing after it becomes somewhat developed. Also, another fir from California (the *lasio carpa*), very distinct, with long, flat, obtuse foliage of a fine silvery hue. The White Spruce, scarcely surpassed for the symmetry of its shape, of a compact growth, with a blue-steely tint, valuable for a contrast. The Menzie's Spruce has also this steely tint to perfection, and is a species of rare merit. Of the evergreen Cypress we prefer the Nootka-sound, which has glossy, dark green foliage, and is very beautiful and entirely hardy. But, passing over scores of evergeens of large growth, we would call your attention to a few of dwarf habit, adapted to the foreground, the points on curved walks, small town gardens, or cemetery lots. I have often been struck with the want of appreciation of the efforts of the trade to furnish those little gems of beauty to their customers.

When you answer their inquiries about the price of those beautiful little plants, they will sometimes reply, "Why, I can buy a Norway Spruce or an Austrian Pine, three times as large, for one-third the price." They do not appear to realize why a gem an inch in diameter should cost more than a piece of granite of ten times the size. Of these diminutive forms, the Conical and Pigmy Spruce are both very neat and compact miniature trees—height not exceeding two or three feet, and always giving satisfaction; Clanbrasil's dwarf, and Maxwell's Spruce are very fine dwarf varieties, with compact, round heads and fine, dense foliage. Among the Arbor Vitæs, the Tom Thumb and the Compacta are very dwarf and compact, with conical heads; and deserve a place in every collection.

The Irish Juniper, with its steely-blue color, and its column-like uprightness, and the Sweedish, with its fresh greenness of color, are well known. The prostrate Juniper generally clings to the ground, but by training up a leader makes a very picturesque appearance. The weeping Norway Spruce, by keeping its leader trained upright, will produce a tree with a height five times the diameter of its branches, the branches always drooping and hugging the parent stem. The weeping Hemlock is another variety, that, by proper training, can be made to look more like an evergreen fountain than any tree known. Among the family of Retinosporas, of comparatively recent introduction from Japan, are some valuable acquisitions. It is impossible to describe their distinctive beauties by language; they must be seen to be appreciated. Among the best is the Obtusa, with its finely-cut, fern-like leaves; the Filiformis, with dark-green foliage and graceful, drooping branches; the Plumosa, of dwarf habit, with dense, slender, feathery branchlets; and two or three golden varieties that keep their bright, golden tint throughout the year, giving the lawn a very bright appearance—admirably adapted to small house fronts, and equally valuable for potting purposes and window decoration. Of golden-tinted evergreens we also have the Golden Arbor Vitæ, the emper Aurea, and the Elegantissima (all members of the Biota division of the Arbor Vitæ family), and all admired for the beauty of their color and their adaptation to decorative purposes. But passing over many varieties, that I cannot take your time to mention, I will glance hastily at a few of the broad-leaved evergreens. Of these, the American Holly is one of the finest. It is perfectly hardy, and its broad, glossy, thorn-armed leaves and brilliant red berries make it very attractive. It is very difficult to transplant it successfully from the open woods, but by cutting it back *very severely*, and taking off all the foliage, you may insure a good degree of success. The Mahonia, or Ashberry, is an evergreen shrub, with glossy, pointed, holly-like leaves, and producing spikes of yellowish flowers, very ornamental. The Kalmia, our native laurel, when grouped upon the lawn, possesses a beauty admired by all. Its foliage, the beauty of the delicate rose-tint of its opening flowers, or the pale blush of their maturity, is enough to charm any lover of the beautiful. But last, I will mention the Rhododendron, whose broad, evergreen foliage, with its glossy richness, would alone entitle it to the first rank, but when this is crowned in June with many clusters of flowers, each large enough for a bouquet, and each variety with its own color, the term *superb* fitly describes its appearance. Much as the cultivation of this plant has been mystified, it will succeed in any good garden soil.

In conclusion, we would say, let us *plant evergreens* to protect ourselves, our stock, and our fields from the incursions of the desolating winds; let us plant them around the sacred precincts of home, where they will become associated with many of our present enjoyments, and will be regarded as friends by our descendants. Let us cultivate them for our own pleasure and profit, and as monuments of our regard for future generations.

THE MANAGEMENT OF AGRICULTURAL FAIRS.

By James W. Fleming,
Ass't Secretary of the Ohio State Board of Agriculture.

[Prepared by special request for the Chagrin Falls Farmers' Institute.]

Permit me first to express my humble belief, *that too much* management is *what ails* many of the agricultural societies of Ohio, depriving them of deserved success by making what is *everybody's business, nobody's business.*

Before proceeding to discuss the subject of managing agricultural fairs, let us for a few moments consider the part they play in relation to our agricultural and mechanical interests, and whether or not they are of sufficient importance to be fostered by proper and judicious management.

Fairs were held in Ohio as early as 1833, the first, I believe, being held in Hamilton county. They did not, however, become general until the year 1846. when a law was enacted by the General Assembly of Ohio, providing, that when thirty or more persons, residents of any county, organize themselves into a society for the improvement of agriculture, and adopt a constitution and by-laws, agreeable to rules and regulations furnished by the State Board of Agriculture, they should be entitled to draw from the county treasury a sum of money, annually, not exceeding half a cent to each inhabitant of the county, but in no case to exceed the sum of two hundred dollars.

The act also provides, that county agricultural societies formed under the provisions of this law, shall, annually, offer and award premiums for the improvement of soils, tillage, crops, manures, implements, stock, articles of domestic industry, and such other articles, productions and improvements as they deem proper; and in making their awards, special reference shall be had to the profits which accrue, or will be likely to accrue, from the improved mode of raising the crop or of improving the soil or stock, or of the fabrication of the articles thus offered, so that the premium shall be given for the most economical mode of improvement.

It is very evident that the law creating county agricultural societies contemplated very much more than the mere holding of fairs for the pleasure and recreation they would annually afford the people of the surrounding neighborhood. It intended that these agricultural and mechanical exhibitions should be established on progressive principles; that they should afford to the people schools where object-lessons might be taught, that could be brought into every-day practice, and thereby engender a spirit of honorable emulation in everything pertaining to agriculture and the mechanic arts.

Have the exhibitions, held under the auspices of our State and county boards of agriculture, thus far fulfilled the mission for which they were created? I answer, yes; and, perhaps, to a greater degree than was even anticipated. These annual exhibitions have afforded to the farmer, the breeder, the mechanic and the inventive genius an opportunity of exhibiting to the people the improvements they have made, which, by comparison and competition, have excited laudable emulation in the quantity and quality of the various farm products; have led to a spirit of rivalry in producing the finest character and form among our domestic animals, and promoted experiment, to a very great extent, without which, it is certain, improvement would be exceedingly slow. Also by bringing together, at stated periods, the agricultural community, a means is afforded for interchange of opinions as to experiments made, as to the profitableness of certain modes of culture, the merits of particular breeds or strains of cattle or horses, the most approved varieties of grains, and a thousand other things upon which the farmer or mechanic may gain information, which would, if he remained at home, and never came in contact with the ideas and improvements as expressed and exhibited at our agricultural fairs, require years of study and experiment to ascertain.

The proof that our county and State fairs are progressive in their character, is the fact that from comparatively mere nothings they have grown to immense proportions; have become fixed institutions in our State, and entitled to the highest regard and encouragement at the hands of the people in whose interest they were established. Each succeeding fair exhibits some improvement over the former, by adding to the already crowded list some new or improved machinery for facilitating the work of the farmer or mechanic, or some improvement in the character of the live stock of the country.

Every man must admit that the invention and manufacture of much of our improved farm machinery is indirectly due to the agricultural exhibitions. It was there the wants of the farm were made known; and the inventive genius of our mechanics afforded the rarest opportunity of examining the various classes of machinery, noting their defects and wherein they might be improved, and gaining valuable ideas for the construction of new and additional farm machinery.

The improvement in the blood of our domestic animals, it may safely be said, is in large measure due to these exhibitions. But a few years since it was a rare thing for an ordinary farmer to own a thoroughbred animal of any kind, but he was content to breed without any particular pretensions to blood or improvement. A *horse* was a *horse*, and a *sheep* was a *sheep*, and that was all that was desired. But the men who made stock-breeding a speciality, who imported or bred only thoroughbreds (professional breeders we would style them), found in the fairs an opportunity of exhibiting their animals, discussing their merits and making sales, and the live farmer, convinced that it was more profitable to breed animals of a blood particularly adapted to the purposes for which they were intended, was not slow in infusing the improved blood into his farm animals and in beginning to breed with a particular object in view; until to-day, types of the thoroughbred and draft horses may be found on nearly every improved farm in the State, and the few herds of short-horn and other thoroughbred cattle have been extended to every county in the State, while the improvement in sheep, swine and poultry has been equally great.

The importance of fairs is not of recent date. Their importance was realized long before the advent of the improved farm machinery of to-day. As early as 1833, at a fair held in one of the river counties of the State, I note the following from the committee's report:

> "The committee have observed, with a great deal of pleasure, that a spirit of emulation is already abroad among the farmers of the county, which promises much in the great work of improvement upon our present *degenerated* breed of cattle. It has been seen, in a preceding part of this report, that several individuals, with a degree of zeal and enterprise highly commendable and deserving, have, regardless of expense, imported into our county from other sections of the country, cattle of the most approved breed, from the English Durham stock, among which, we would respectfully invite the attention of our agricultural friends, to the two beautiful premium bulls of Messrs. Dana and Devol. We doubt not but the public generally will duly consider the expediency and importance of improvement upon this indispensable branch of our agricultural labors, and will speedily and generally avail themselves of the opportunity now offered by these gentlemen."

Twenty years later, when the influence of agricultural fairs was being felt in nearly every section of the State, a then prominent agricultural paper describes them in the following language:

> "An Agricultural Fair is not only a place where superior specimens of agricultural products are exhibited to the view of the visitors, but a higher object is to be accomplished—has been, and will continue to be—the interchange of thought among

those who have produced the articles on exhibition. It is in this light that agricultural fairs are accomplishing the grand results which will continue to rank us as a practical, farming, and progressive people. It is not enough that we should see the superior crop of grain, &c., but we should have the man with us, that we may know by what process he produced it, so that his co-laborers may know and realize the facts which are brought before them, in its most practical form. It is not enough that we see fat cattle, but, that we see the husbandman who produced them, that our less fortunate husbandmen may, by inquiry and observation, be aroused to the necessity of doing likewise—so that the object of the fair may be the means of perpetuating the progressive spirit of political and moral economy.

Fairs, rightly conducted, are great stimulants to good and thorough cultivation of the soil. Nothing is so well adapted to create as healthy a feeling, or develop so thoroughly the true dignity of nature's nobleman, as this theater, where all may meet in the exhibition of the arts of peace and usefulness; where those who have failed to realize their fond anticipations from the exhibition of their products, rejoice in the success of their neighbors. It is this feature which endears them to all good men who know the wants of our farmers, and who have from the earliest stage of their existence stood by them, believing they were destined to accomplish as much good in their sphere of usefulness as education has in hers.

The benefits accruing from agricultural fairs are of a two-fold nature, and apparent to all. Where the fairs are made an object of attraction, the greatest amount of thriftiness and prosperity will be found to be prevailing in the sections which contribute to and take an interest in their prosperity. The benefits flowing from them are not to be estimated in a pecuniary sense. There are benefits conferred on the agricultural interest through the influence of this institution, which command our most hearty admiration and respect for those public benefactors of our race, who have nurtured and expanded this germ, so that agriculture should take once more her rank as one of the most honorable pursuits of man.*

The improvements begun in the counties, through the immediate influence of the county fair, did not stop there. As improvements progressed, farmers, breeders, contrivers, and inventors, sought a broader field for comparison and competion; hence, the establishment of a State Fair, which has certainly, thus far, contributed its share to the agricultural interests. The same desire for broader fields of competition caused the establishment of National and Inter-National Fairs, until the improvements, stimulated and encouraged by the county fairs, have been made known and appreciated by the people of every nation.

In the published reports of the Vienna Exposition of 1873, American industries take high rank, and are spoken of as follows:

"The people of the United States are essentially practical; they are never satisfied with words or useless demonstrations; small gratifications of self-love count for little with them; show does not affect them. A thing is of importance to them only when it will be likely to be of immediate or early use, and to bring in some return. Hence, their exhibition contrasted singularly with those of many other countries, which encumbered their galleries with collections of curious objects in nature and art, with relics or treasures more or less rare, or valuable objects which simply excite the admiration of visitors.

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* T. C. W., in Genesee Farmer.

"All that was to be seen in the American exhibition, had, on the contrary, a clearly defined object; nothing was found there which did not yield a return. There were exhibited machines and raw materials, which are extensively used in trade, or which are susceptible of becoming important for exportation. There might be found all that could strike the imagination of visitors favorably, and by creating the desire to settle in the midst of a region which produces them in such marvelous abundance, maintain or increase that formidable current of emigrants, which carries away, regularly, each year, from old Europe, a portion of its youth and of its living forces."

But for the county fairs, State and National fairs would never have existed, and the great Centennial Exposition of 1876 would have been a thing unknown.

So, when we consider our agricultural and mechanical fairs in their proper light, no fact is more apparent to the reflecting mind than the immense benefits they have contributed to our material prosperity. They have contributed more to our vigorous growth as a nation than all the treasures of our hills, and are, therefore, justly entitled to proper and judicious management, and the support and encouragement of the whole people.

I shall now endeavor to briefly sum up a few of the more important items connected with the management of agricultural fairs. Under the rules of the State Board, for the organization and management of county societies, any resident of the county, not under twenty-one years of age, can become a member of the society, by the payment, annually, of not less than the sum of one dollar, to the Treasurer.

The first essential, therefore, in the organization of a county society, is the securing of members, which, in nearly every county of the State, is done at the time of the annual exhibition, though not always in like manner. But two plans, I believe, are in general use. One is the selling of what are termed *Membership Tickets.* Where this system is in vogue, a person desirous of becoming a member of the organization, purchases a membership ticket (the price of which, in no county, I believe, exceeds the sum of $1), and his name is enrolled on the membership list. The ticket so purchased is good for not less than four admissions to the fair, and the person, whose name was enrolled, on the purchase of the ticket, is entitled to all the privileges of a member, for the term of one year, which includes one vote at the annual election for Directors.

This system of securing members has its very serious objections; in fact, has caused some of the county societies of the State to be badly managed, and I may say, nearly ruined. Under its provisions, persons desiring to secure the election of a Board of Directors who would operate the fair in certain interests, proceed to the annual exhibition, armed with a prepared list of, say one hundred names; one hundred membership tickets are purchased, and the list enrolled as members of the society. In addition to swelling the list of members one hundred, the purchaser receives, say. four hundred tickets of admission to the fair, which he and his agents proceed to sell, generally to persons coming to the fair in conveyances, and who, not aware of the dodge that is being played, think it a great accommodation to have the tickets brought to them, thus enabling them to drive directly into the fair.

The persons who practice these tricks lose nothing but their pains, and, at the annual election for a Board of Directors, control the number of votes represented by the membership tickets purchased, and thus, in many instances, secure the election of members who will operate in their interest at the expense, perhaps, of the general good of all

The other system to which I refer, is that whereby the purchase of what is termed a *Family Ticket* entitles the purchaser to membership. These family tickets are generally sold at one dollar each, and in addition to making the purchaser a member of the society, entitle himself, wife and all the members of the family, under twenty-one years of age, to admission into the fair. The objection to this system is, the rapidity with which some families increase about fair time, and many members, who had long since been considered voters, suddenly becoming minors. This latter system I believe to be exceedingly detrimental to the financial success of any agricultural fair.

The existing evils, in connection with the securing of members to our county societies, could, I believe, be easily remedied, and but a trifle more labor made necessary at the time of the fair. I should advocate, as the best system, the issuing of membership certificates, and if the price of a single admission to the fair be twenty-five cents, let the membership certificates be issued at one dollar, accompanied by four, or even five, if thought best, single admission tickets. Let the person desirous of becoming a member present himself at the treasurer's office, sign his name and post-office, or township, in a record book kept for that special purpose, and receive his certificate and tickets of admission. These certificates could be so printed that it would be only necessary to fill in the name of the member, or the name might be left out, and each one issued stamped with the seal of the society.

This system, if strictly adhered to, would not only guard the fair against improper admissions, and thus increase the receipts of the treasury, but would also guard against impure elections, by requiring each member, before depositing his ballot, to present his certificate of membership, which, if found correct, should be stamped, and the member permitted to cast his vote. If there should then be any question as to the person presenting the certificate being the one to whom it was issued, reference could be made to the record in which he signed his name.

The purity of an election for a Board of Directors to an agricultural society is of as much importance as the purity of an election to fill political offices. Each member should know when and where the election will be held, and the time the polls will open and close. Members of the Board should be selected because of their special fitness for the position, and not to compliment any particular section of country or class of people. Each department of agriculture should have an efficient representative. This will enable the Board, at its organization and in conducting the fair, to have a man for every place, who shall understand the wants and requirements of his special place; for, to insure the success of a fair, financially, and as a promoter of the great agricultural interests, it is required that each member be found in his place.

Generally the first business meeting of the Board, after its organization is held for the purpose of adopting a premium list, and in laying out the general plans for the working up and holding of the annual exhibition. This, therefore, becomes the most important meeting of the year, as upon the action taken at this meeting depends, in a great measure, the success of the exhibition. Each member of the Board should come to this meeting, not simply to vote upon measures that may be brought up, but prepared to suggest some well-matured plan for the management of the department in which he is especially interested, and to present such other ideas as he may deem to the best interests of the society, and to the people of the county. In the adoption of a premium list, nothing should be withheld that will in any manner tend to increase or improve the products of the farm, the factory or the household; for if the county society can encourage the application of scientific principles on the farm, whereby the crops may be increased and improved; if it can stimulate research and experiment, thus prompting the invention and manufacture of new and improved machinery, and can encourage means for lightening the burdens of the household, then, indeed, has its object been more nearly accomplished than had it filled its treasury with money and accomplished nothing in these directions. Liberal encouragement should be extended to the breeders of thoroughbred animals, and every possible effort made to improve the character of the live stock of the county.

Speaking of thoroughbreds brings us to the question that has been so freely agitated in our county boards, and at the State Agricultural Convention, each year since I can remember—that of horse-racing or trials of speed. It has been claimed that they encourage pool-selling; are not legitimate branches of agriculture, and should therefore be abolished. But let us for a moment consider. We must admit that there is a demand in every market for horses bred with an especial view to speed and endurance, and that the stoutest and fastest roadster is in constant demand; we must admit that no horse is so well adapted to the general use of the farm as the one infused with the blood of the thoroughbred or race-horse, and why? Because it gives him a power of endurance beyond the common-bred animal, and an amount of speed that enables him to do his work in less time; and the horse so bred is not only best adapted to the general work of the farm, but he makes the best roadster or carriage horse.

It is a well-conceded fact that thoroughbred stock of all kinds is far superior in intelligence to scrubs or animals of mixed blood, and that we have no animals more highly bred than the thoroughbred or race-horse. Without an infusion of this blood it is impossible to breed horses possessing the desired qualities for the carriage, for roadsters, or for the saddle, and for this reason the preservation of the race, in its purity, is a matter of the highest importance.

The many public-spirited men engaged in the breeding of thoroughbred and trotting horses are not so engaged because of the premiums offered in the speed ring at our agricultural fairs, but because of the demand for them in the markets, and the increased price they bring over common-bred animals, the same as thoroughbred cattle, sheep and hogs bring over the common-bred animals of their kind.

The object of the farmer, like any other business man, is to make money, and it is certainly legitimate and decidedly the best policy for him to breed a class of animals that will meet the demands of the market. Then is it not proper and legitimate for agricultural societies to afford to the breeders of thoroughbred or race-horses an opportunity of showing what they have succeeded in producing, and this can only be accomplished by the continuance of the speed ring and the offering of premiums for this class of horses.

The offering of premiums for speed animals does no more imply the selling of pools than does the offering of premiums for any other class of animals or productions. It is an outside issue, in no way connected with the objects sought by the introduction of this blood, and will be promptly prohibited at every well-managed agricultural fair.

Too much importance cannot be attached to the matter of advertising our fairs. It is not enough that a complete premium list be published, and given general distribution among the breeders and producers who are likely to contribute to the exhibition. An announcement, setting forth the days and dates of the fair; the premiums offered, and the probable attractions should be continually kept before the people. The newspapers should be promptly furnished with such transactions of the society as relate to the progress or prospects of the fair, and should be early enlisted in the work of awakening the people to the importance of the exhibition, and the necessity of patronizing the institution that is operated in their interest.

When the people learn to look upon the exhibition as their own, and realize its important work in the promotion of their interests, they will cheerfully contribute to its success, at least to the extent of an admission, and thus enable the Board to abolish the complimentary and free pass system, which, I venture to say, has never benefited a fair to the extent of a dollar, but, on the contrary, has robbed the treasury of thousands. I wish I could induce every fair in the State to entirely abolish complimentaries and free passes, and, instead, issue to members of the press, committeemen, clerks, employes, and such others as were justly entitled to free admission, a badge of recognition, denoting their station, and to be worn in a conspicuous place.

It is really surprising to see the number of people who think they should be complimented with free admissions to our fairs, many of whom never contributed a cent, or even a passing thought to their success. With the adoption of the badge system, the members of the Board could say to such: We have voted not to issue any free passes or complimentaries.

Until a few years since, the rules of the State Board for the governing of the Ohio State Fair provided, that any person might enter as many different animals, or articles, as they desired, free of charge; that is, no entrance fee should be charged for exhibits in any of the departments. As the fairs increased, the Board learned that free entrance filled the stalls and pens with a class of inferior animals that were brought to the fair, not for competition, or because of any particular merit they possessed, that would be calculated to improve the common stock of the country, but on account of free entrance, and free hay and bedding—were brought simply for sale.

To obviate this great evil, the Board finally ordered that an entrance fee, of five per cent. of first premium, be charged in all the departments of live stock, except sweepstakes and speed classes, which should be ten per cent. of the amount offered. This order met the approval of breeders of fine animals; resulted in improving the general character of the exhibitions, and furnished an annual revenue of from $2,500 to $3,000; the fees in many of the speed classes more than paying the premiums offered.

I believe the adoption of such a rule at our county fairs would operate with corresponding results. It has already been adopted at the fairs in some of the southern counties of the State, and I have yet to hear of a case where it has not proved beneficial.

Among the difficult tasks of a Board of Agriculture, is the selection of competent persons to serve on awarding committees. In making these up, it is too common an error to insert the names of persons most readily thought of, and without any particular reference to their qualifications. No person should be appointed to serve on a committee, who is not deemed thoroughly qualified to judge of the articles or animals to be passed upon by that committee; neither should persons be appointed unless there is some reason to expect they will serve. Better *no* committees, than unqualified ones, or the appointment of persons simply for honor's sake, and who will not serve.

The position of committeeman is an important one, and as it is among the legitimate objects of agricultural societies not only to encourage the production and exhibition, at their annual fairs, of the best animals, implements and articles, thus exciting emulation among those who witness them, but also to collect and diffuse valuable information on subjects connected with husbandry, among all who either may or may not be able to be present at the exhibition, the object can, in a good degree, be accomplished by the awarding committees incorporating into their reports the results of reflection, observation, and experience upon the subjects with which they are supposed to be familiar; though it is greatly to be regretted that so many of the committees seem to think their task completed by the simple announcement of their awards. To arrive at satisfactory decisions is as much as can be reasonably expected of a committee during the hurry and bustle of a fair day, but a little thought and painstaking previously, might result in making the reports not merely a simple list of awards, but documents of value, and worthy of general distribution among the farmers of the county and of the State.

As an illustration of the results of wise and judicious management, I must be pardoned if I pass a compliment to the State Board of Agriculture, under whose auspices is held the annual Ohio State Fair.

For several years, and until the year 1879, this Board had been laboring under the disadvantages arising from a heavy debt hanging over its official head, caused by circumstances to which all our county boards are liable, but, notwithstanding the disadvantages, there was no such thought as giving up the boat. The incentives created by the exhibitions for the promotion of the agricultural interests were kept constantly in view, and as great care was manifest in the preparation and management, as though the treasury had been overflowing with funds.

At the beginning of the year 1879, the Board found itself without funds, and in debt to the sum of ten thousand dollars. This state of affairs only tended to increase the efforts of the Board for success. The most thorough organization was perfected, and each member of the Board assigned to some particular duty, for which he was held responsible. A complete premium list was adopted; the press of the State was drawn into the ranks to acquaint the people with the aims and objects of the State Fair, and the county societies were generally enlisted in disseminating State Fair literature and pushing forward the work.

The interests of the fair were never allowed to become dormant; the work was kept up until the opening of the gates, when the results of individual and concerted action were to be seen in every department. The exhibits were favored each day with interested thousands, and the good results of the fair, I have no doubt, were felt by the people of the entire State. At the close of this fair the Board were enabled to pay all past indebtedness and all the expenses of the year, and at the close of the year found itself free from debt, and with a surplus of $5,000 in the treasury

With the year 1880 the same careful preparations were begun and continued during the year, and with corresponding success, the result of which successes encouraged the Board to widen its scope of usefulness in the agricultural field, by the compilation and publication of quarterly crop reports, and in the establishment of Farmers' Institutes, such as we have here to day.

Financial success in the holding of fairs is not always certain, but with the grander objects in view, and every man at the wheel, the reverses that may be met by our State and county Boards will soon be overcome.

The closing of an annual fair does not by any means close the management of the affairs of a society for that year. The last act of a county board is not accomplished until it has prepared a complete report of the condition of agriculture in the county. To these reports, published as they are in the State Agricultural Report, do the people of other counties, of other States, and even the people of the old world look for agricultural information. They should, therefore, be so framed as to furnish a safe guide to persons seeking regions adapted to any particular branch of the industry, and never so incomplete as to create misapprehensions and thereby mislead. Omit in them nothing that in any manner relates to the agriculture of the county or that will give a record to the State.

It is my earnest wish that this county agricultural society may meet all the requirements of a well managed organization, and be attended with the most abundant success.

THE PROPER TIME TO CUT HAY.

By Dr. J. S. R. Hazzard, *Springfield, O.*

[Read at the Springfield Institute.]

What is hay? Before we answer this question we wish to preface by asserting, that, grass is the natural, and, therefore, a complete food for all herbivorous animals. Not any one particular grass will supply all the requirements of the animal economy, but the different varieties as diffused by the hand of nature in our pastures, will meet, perfectly, every want of the animal system. Now to the question: What is hay? The most laconic answer would be, preserved, or dried grass, but this definition emphasizes but one factor, and, unfortunately, the only one, too frequently supposed to constitute the *sine qua non* of good hay. Hay is grass in a dried state, retaining all of those constituents that are necessary to the maintenance and up-building of animal tissue. How to secure this involves the question at issue, and requires a knowledge of the processes by which nature develops the grass, and its final culmination in the production of seed. One more statement is necessary—to wit: that the value of any article of food is measured by the per cent. of albuminoids, or flesh-producing material it contains, just as the value of a quartz rock is determined by the amount of gold it may contain. Having given the definition of hay, the purpose for which it is used, and the test by which its value is determined, I answer that experience has demonstrated and science has explained why the very best hay is cut just before the blossom is produced, because at this stage of its growth the young, succulent grass contains more of the albuminoids, and less of crude, indigestible matter than at any other period of its existence, and as it grows older, the percentage of albuminoids rapidly decreases, while the crude and indigestible fibre constantly increases. In proof of this statement I will give the results of Dr. Wagner's experiment made at Darmstadt. He selected a field of red clover, of uniform growth, and divided it into three parts, each of which contained eight and one-fourth rods. On May 22d, just before the clover began to blossom, plot No. 1 was cut, yielding 85 lbs. of cured hay. June 13th, when in full bloom, plot No. 2 was cut, yielding 114 lbs. of dry hay. July 1, near the end of blossoming, plot No. 3 was cut, and yielded 128 lbs. of dried hay. You will perceive that in the forty days intervening between the first and last cutting, there was a gain of 43 lbs. of hay, equivalent to 800 lbs. per acre. Now, I know you are ready to say that this is a bad showing for early cutting, and so it is, if weight is the object sought. But did the increase of feeding value correspond to the gain in weight? We all know that a pound of oil-cake is worth more as food for a horse than ten pounds of wheat straw. To settle the relative value of these three lots of hay, Dr. Wagner subjected them to chemical analysis, and found that the 85 lbs. cut from the first plot contained $64\frac{2}{10}$ lbs. of organic matter, $11\frac{8}{10}$ lbs. of albuminoids, $21\frac{9}{10}$ lbs. of crude fibre, and $30\frac{6}{10}$ lbs. of carbo-hydrates, or fat-producing material. The 114 lbs., cut when in full bloom, contained $90\frac{5}{10}$ lbs. of organic substance, $12\frac{2}{10}$ lbs. of albuminoids, $36\frac{4}{10}$ lbs. of crude fibre, and $41\frac{9}{10}$ lbs. of carbo-hydrates. The 128 lbs., cut when the blossom had turned brown, contained $100\frac{2}{10}$ lbs. of organic matter, $12\frac{8}{10}$ lbs. of albuminoids, $42\frac{3}{10}$ lbs. of crude fibre, and $46\frac{9}{10}$ lbs. of carbo-hydrates. If the relative amount of albuminoids any given feed contains determines its feeding value, we will find that the first hay cut will stand at the head of the list. It is true, during the forty days intervening between the first and the last cutting, there was a gain of 36 lbs. of organic matter; but it gained only one pound of albuminoids, while the crude, indigestible matter is increased 21 lbs., or nearly doubled, and you will also notice, that from the full bloom to the brown heads there was hardly any gain in albuminoids, but the crude fibre increased $6\frac{1}{4}$ lbs., and the carbo-hydrate 5 lbs. But another fact must not be lost sight of in estimating the value of the 43 lbs. gained in the forty days intervening between the early and late cutting, which is, that fully one-fourth of this gain is indigestible, and will be thrown off as *effete* matter, and, if the grass was allowed to stand until entirely ripe, one-half will become worthless as nourishment, while, on the other hand, the early cut clover is almost as digestible as meal and potatoes. To make the fact brought out by this experiment more practical, let us illustrate a little further. It is generally conceded that the animal economy requires about 3 per cent. of its own weight in food, to meet all the requirements of life. Suppose, then, we have a young bullock, weighing 1,000 pounds; he will require 30 pounds of hay per day to keep him in a growing condition. Now, 30 pounds of the first cut hay contains about $4\frac{1}{5}$ pounds of albuminoids, the very material his system requires to build up its muscular and other tissues; about $10\frac{1}{2}$ pounds of carbo-hydrates, which will supply all the fuel necessary for respiration and animal heat; and only $7\frac{1}{2}$ pounds of indigestible matter to enlarge the manure heap. To obtain the same results from the hay cut in full bloom, he would have to consume about 37 pounds per day, because it contains about one-fourth less albuminoids, and only a fraction more of the carbo-hydrates, but $1\frac{1}{2}$ pounds more of indigestible matter; but if the last cutting be chosen, about 40 pounds per day will be required, or the difference in feeding value of the first cut on the 22d of May, and the last cut on the first of July, is fully one-fourth; or if hay cut just before blooming is worth $20 per ton, that which is not cut until the seed is nearly or quite ripe is worth but $15. Now, if the hay is for market, and the purchaser is indifferent to, or ignorant of the intrinsic value of hay, the riper the better for the producer; because he can sell more woody fibre, which, like sand in sugar, tells powerfully on the sensitive beam of the scales. But this experiment of Dr. Wagner's that we have used to illustrate our position, applies to clover. Can the same conclusions be applied to other varieties of hay? We answer, chemical analysis shows us that all of our ordinary fodder materials contain essentially the same ingredients, but in very different proportions, which will be manifest by comparing the analysis of 100 lbs. of red clover and timothy hay, cut when ripe, as generally understood by farmers. In 100 lbs. of red clover, besides water and inorganic matter, we will find $77\frac{7}{10}$ lbs. of organic matter, of which $9\frac{4}{10}$ lbs. are albuminoids, $20\frac{3}{10}$ are carbo-hydrates, and 48 lbs. will be indigestible matter. In 100 lbs of timothy we will find $81\frac{2}{10}$ lbs. of organic matter, of which $9\frac{7}{10}$ lbs. are albuminoids, $48\frac{8}{10}$ lbs. are carbo-hydrates, and $22\frac{7}{10}$ lbs. indigestible matter. Thus it will be seen that the flesh-producing material in red clover hay, stands to the fat and heat-generating matter as 1 to $2\frac{16}{100}$, while in timothy hay the same components are related as 1 to 5; but if the timothy is cut before blooming, these relations are changed to 1 to 4, or thereabout; so it will be seen that we are driven to the same conclusion, to wit: that hay of any kind should be cut just before the blooming period, if its maximum feeding value is sought, and especially is this true, if young stock are to consume it, or if it is expected that the wear and tear of animal tissues that are inseparable from hard work, are to be kept in repair. Now, I have very briefly introduced for your consideration, a subject of the very first importance, not only to you as farmers, but to the world of mankind. This, I think, you will be willing to admit, when I tell you that the hay crop of this country, according to the census of 1870, was estimated at $400,000,000, and this immense sum could have been increased $100,000,000 more if so many farmers did not ignore the voice of nature and reason as they speak to them through science, and persist in cutting their hay too late. This is a dead loss to the wealth of the whole country, consequently all are interested.

WOMAN'S DUTIES IN FARM LIFE.

By Mrs. Eli Stanton, *of Barnesville, Ohio.*

[Read at the Barnesville Institute.]

We know not that we can say anything that will be interesting or add a new idea to those assembled here this evening. Woman's duties in farm life are many, and we doubt very much whether they differ very essentially from woman's duties in general. In the first place, it is her duty to be a true and honest woman, serving the author of her being and steadily looking unto Him for direction in all things that she may not err in the performance of her duties. It is her duty to be thankful for the privilege so highly favored as that of being able to conduct and participate in the active employments of farm life, and the many enjoyments and blessings arising therefrom, realizing that woman's life on the farm should be the happiest among all the different professions or avocations in life. In the first place, they are permitted to dwell in a pure atmosphere, surrounded with the handi-work of the Great Artificer of nature itself, in all its beauty and loveliness, and above all we are away from the unhallowed influences of city life, where temptation and vice follow each other in rapid succession. But I would not overdraw the picture, but confess that we also have enough, and too much of sin and misery in the rural districts.

As regards labor, it is her duty to do no more than she is able to do. Simply because hers is a farm life does not imply that it is, or should be one of drudgery, nor is it so only as we forget our duty and make it so. Housework on the farm is not servitude, and women that speak of it as such would never be content under the easiest and most indulgent circumstances. The profits or reward of labor bring to us the food we eat, the clothes we wear, as well as every other temporal blessing we enjoy. It is her duty to economize both time and labor to the best advantage, doing what is needed to be done properly at the right time, and wisely for thought and useful reading, all of which is attainable in farm life. leaving undone that which should not be done, and, by so doing, save time

If a wife, it is her duty to understand her husband's affairs, and realize as concisely as he just on what foundation his financial affairs are based, though his possession in this respect be smaller or greater;

and it is a matter of vital importance to his success or failure that she at all times encourage him not to invest beyond his abilities to perform, and that she herself abstain from anything that will cause or increase his embarrassment in these respects. She should realize that whatever may be our position as relating to life and its labors, whether it be a high or low one, that the inherent worth of character should be the standard by which we should be judged; though observation many times shows that true worth is disregarded if it is not accompanied by rank or wealth, which the poet likens to the "guinea's stamp" on a piece of gold, and without which it is considered of but little value. There are minds of a high order of excellence, dwelling in obscurity because mankind is continually mistaking showy and brilliant manners, rich and fashionable dress for real worth; and from the rank of the farmers have sprung some of the brightest intellects that ever graced the earth. Though his hands may be roughened by toil, his language inelegant, yet sympathy, kindness, honesty of purpose, generosity of mind and firmness of character will make a man, whatever his rank, most truly one of nature's noblemen. And living in an age of unparalleled activity, the capabilities of man seemingly unlimited, old theories passing into oblivion, new forms, new views, new ideas, new systems, new combinations, meeting and mingling, coming and going—in an age when the public mind is agitated with intricate questions, the vital forces of good and evil waging a mighty warfare—an age when the legitimate rights and the equality of the sexes are made the topics of the hour—when the dignity of woman is assailed, her motives suspected, her capabilities analyzed—it is our duty to pause and ask ourselves what part or lot have we in this advance movement; are we standing at our posts faithful in the discharge of the duties given us to do?

But we hear some one ask, "what can we do?" We would answer, nothing but what has been given us to do; or in other words, anything that we can do and do right. It is our duty to realize that we are created for something more than enjoyments, to understand something of our powers, and honestly strive to exert those powers to the fullest extent in the furtherance of goodness and truth in the world.

It is a serious duty of woman to ponder what is the great object and aim of a girl's education. A true development of body and mind is the result of effort. The sculptor, in his studio, chips and chisels and moulds according to the ideal before him; he looks and studies, he thinks and realizes the presence of the angel there; he sees it and works incessantly that he may reveal it to others; and is it not thus that we should look upon the child of which we have the care? And we need not think to perfect this work in a day; it is a life-work. Our energies are taxed, our judgment brought into requisition. The child is not a block of senseless marble, but a human soul, the beauty or deformity of which is to be developed through our instrumentality. It is our duty, in the education of our daughters, to remember that discipline, strength and knowledge are useful. To remember that for true womanhood should a girl be educated; not simply to make her a skillful musician, an amateur artist, a passable linguist, but to render her a strong, wise, sensible woman, with a firm, pure principle of right in her heart. Secure this, and she will grace any position in life that is honorable, and be ready for every duty.

But it is not unusual to hear it said of woman that she lacks aim, is going with the tide, drifting, swayed, beaten, without well-directed purpose. If this is so, is it not the effect of education? And it is our duty as women to correct this tendency. Convince the rising generation that it is disreputable for a woman to be idle, listless and aimless, as it is for a man to have no regular business. It is woman's duty to use her abilities to the best purpose in whatever position the all-wise Creator has placed her.

In this age of books, newspapers, and magazines, another question is one of vital importance. What shall our children read? There are many really good and interesting books, especially for the young, and it is woman's duty to teach the rising generation to abstain from light and frivolous reading and impure literature in every respect. It is woman's duty to teach them to cultivate a purer taste, to shun as they would the plague the reading of all that is vicious and demoralizing. It will not do to hesitate; the evil is abroad and we must meet it, not with a fault-finding disposition, but by convincing our children, if possible, that the mind cannot dwell on scenes such as are represented in too many books and papers without receiving impressions injurious to the progress of positive good in the soul. It is our duty to endeavor to replenish the mind with useful knowledge and cultivate all those tastes which are allied to truth and virtue, dethroning selfishness, enthroning truth and virtue and honor and a conscience leading the affections outward in good will toward men and upward in reverence and gratitude to God. It is woman's duty to teach that a man's life is more than meat and drink; that the necessity laid upon mankind to labor for food, clothing and shelter is itself a valuable part of their moral discipline, and the good we receive by industrious efforts is not to be despised; that labor is honorable, and that honor is due to all who labor honestly, whether with head or hands, whether in the murky darkness of the mines, in the glory and brightness of the harvest field, in the busy hum of the factory, or at the teacher's desk. It is her duty to teach that idleness is disgraceful and that a farmer's life, instead of being one of drudgery, is the first and noblest calling, and one which requires energy, skill and judgment; that the tillers of the soil are the true nobility of the land. Kings may wield the scepter of power and cause nations to tremble, but let the agriculturist withhold his products and he brings them as suppliants to his feet, and for his golden grain and the fleeces from his flocks, they pour their treasures into his hands that their temporal want may be supplied.

It is woman's duty to teach and inculcate a system of sound morality. Already we are reaping the bitter fruits of a low state of public morals, which state of things seems at times to threaten the very foundation of civil society; and whatever we would have appear in the life of the matron we must instill into the hearts of the youth. The heart gives temper and tone to the whole being. It is the fountain from whence the streams of life issue, and the streams cannot be good unless the fountain is pure. And any system of education which neglects the cultivation of the heart, seeks to purify the stream without any regard to the fountain. This, it is true, is a sphere in which we must recognize the direct agency of an unseen, but efficient power, coming to us from above, to work in and renew the natural forces of humanity. But this does not diminish aught of woman's duty. The cultivator of the soil recognizes the fact that sunshine and rain are essential to vegetable growth, but he is none the less assiduous on that account in his efforts to prepare the soil that these may operate under the most favorable conditions, nor any the less vigilant in preventing the growth of noxious weeds which would hinder the growth he would foster. There is, in every child, a native power of spiritual apprehension which is subject to the general law of human development, and it may, by proper stimulation in childhood, be made to live and grow till it becomes strong, or it may be dwarfed and enfeebled by neglect and disuse until the soul almost loses the consciousness of the possession of any such power. And, it is woman's duty to teach that the moral and religious part of man's nature is the highest part, and of right it has sovereignty and dominion over all the rest, and that the happiness of individuals, the purity, prosperity and permanence of society, imperiously demand the cultivation of all those susceptibilities of our nature in youth, whose proper development tend to range the will on the side of God and right. Thus the mind is enlarged, and the heart enabled to grasp a more tangible idea of the greatness, the power, and the love of the Great Author.

She should teach that God has given us a world of beauty, and so ordered it, that the path, however humble, is not destitute of enjoyment; that the way cannot be lonely that is brightened by His presence; that the heart that is filled with his love, has no cause for uneasiness. To advance in mental culture, reaching out after what is holier, not unmindful to teach and to lead in all things good, showing herself a pattern,—this should be the grand end and aim of woman, whether on the farm or in other walks of life.

TRANSPORTATION IN ITS EFFECTS ON PRICES.

A paper was presented at several institutes, by the Secretary, on "Supply and Demand, and Fluctuations in Prices of Farm Products." The first part of it covered the questions discussed on pages 19, 20, 21, 22 and 23 of this volume. The last part of the paper was as follows:

But no discussion of prices would be at all complete which should leave out of sight the great question of transportation or distribution—of railway and other freights. One naturally asks if the great principle of Supply and Demand—of competition—will not regulate railway freights without the interference of civil law; if not, why not? The civil law, we all agree, should interfere as little as possible with contracts; it should leave the contracting parties free, only aiding in the enforcement of contracts when made by the free parties.

Why, then, should civil law have aught to do with the bargains between the railways and the people? I answer, because in this case the contracting parties *are not free;* the people, as a rule, or at least often, must send by one particular railway or not at all. Railways are—by the very conditions of their existence—essentially monopolies, except for competing points; and when trunk lines pool their earnings there *are no* competing points. Now, law regulates and restricts monopolies. In the case of new and valuable inventions, indeed, our patent laws give the inventor a monopoly of manufacture until he can have a fair reward for his invention; then the patent expires and *the public* gets the benefit of the invention. Now, railways and locomotives are not the invention of the Vanderbilts and the Goulds who now own them; the patents on them, if any had existed, would long since have expired. The immense benefits, therefore, resulting from the invention of railroads long since came to be the property of the people; in no sense do they belong to the builders or present owners of them. The capital invested belongs to them, and fair profits on the investments; but the benefits of the invention belong to the people. Hence, the fallacy of those who say the people have no right to complain so long as the railways carry cheaper than teams and wagons can. Of course they carry cheaper; that is what they were built to do—to carry at immensely lower rates. That is the gist and glory of the inventions on which the railways rest; and the benefits of those inventions now belong the people—to the world—and not to the stock or bondholders of the railways; to them belong simply the fair interest or dividends on the money invested, and pay for the skill and labor of its management. This distinction cannot be too strongly drawn nor insisted on too strenuously; for its disregard forms the basis of a most serious fallacy. I have said that railways are, from the very nature of the case, monopolies; each has what may be called its "suction range" of traffic, inside of which another road cannot profitably be built. The width of this "suction range" for local traffic varies with the wealth, productiveness and population of the region through which the road is built; but inside that "suction range," whatever it may be, capitalists cannot afford to build another road and the public cannot afford to have it built - it would cut up the country too much, and render both the competing roads non-paying. Hence, in such cases, the second charter is not—or should not be—granted.

So, then, for this given "suction range"—be it ten or forty miles wide—the road first built is essentially and necessarily a monopoly; and the law claims, and has and uses the right to regulate monopolies. Law gives an omnibus line or a street railway line the monopoly of public passenger traffic on certain streets, *and regulates* the fare. Law gives a ferry company the monopoly of traffic from point to point across a river and fixes the price. It gives a turnpike company the monopoly of travel on a certain road, planked or graveled or macadamized by the said company, *but fixes the toll;* and the fare, or toll, or price must be uniform, fixed and publicly declared—the same service must receive the same reward. The street car, or omnibus, or ferry, or turnpike company does not *own* the street, or river, or highway, except for the given purpose of traffic or transit and at the given rates.

Is the case any different, now, with the railways? Are they either more or less than thoroughfares? Suppose a case: The agricultural and mineral products of a given region demand an outlet to market; how can the right of way be obtained through unwilling or even hostile property? Only on the ground of public requirement. Only on this ground can I be compelled to sell right of way through my land to a railway company—not at my own but at an appraised valuation. Only on this ground can the government itself condemn or appropriate private property even to its own use; can it, then, bestow upon a railway corporation powers it does not itself possess? The right of way for a railway, then, is given, sold or condemned—through private farms or city lots—only as a *public thoroughfare* and for the public good. The very expression "right of way" implies this; the land is not sold or given for any other purpose. It is not sold for farming purposes or manufacturing purposes; the government cannot lay its hand on a rod or foot of my land and make me give or sell it to another farmer; it cannot pull down my shop or mill that another man may build himself a shop or mill. It can only do it that the public—all alike—may have a needed thoroughfare or some needed public good; it cannot admit one and exclude another from that thoroughfare—it was taken and made *for the whole public.* Nor can the government give to a railway company the right it does not itself possess of excluding any portion of *the public* from that public thoroughfare, either by unequal fares or freights or by discriminations or rebates in freights. Like pay should have power to demand and receive like service from these public servants for every member of the great public.

The government or state—exercising the right of "eminent domain"—has granted to the railway the right of *way*, but not the right of oppression or extortion. The railway company does not own the land between its fences, except as a public thoroughfare; it does not even own its road-bed and its depots and station-houses, except to use for the public convenience. It cannot pull up its track, run off its rolling stock and engines and turn its depots into factories and its waiting-rooms into saloons or retail stores; if it ceases to use its property for the purposes specified and intended, its charter is revoked, and even its road-bed is condemned and reverts to the state or to the original owners.

Such, at least, seems a reasonable view of the matter. Such seem to have been the holdings of our highest courts. Such, too, have been the uniform grounds on which railways have asked for charters and right of way—indeed the only possible grounds on which they could obtain them.

Now, it is implied in all this, I think, that the railways shall carry at fixed, uniform, regular and reasonable rates, and that the law has a right to regulate those rates in a way to do injustice neither to the roads nor to the public. This right was conceded at first and complied with by the roads; but gradually they began to consolidate, grow wealthy and arrogant and to claim that they *owned* the roads, land, bed and equipments, absolutely and as private property, to be used exclusively for private emolument. Like the children of Israel they "waxed fat and kicked;" they "forgat the rock whence they were hewn." They forgot that they were creatures of the law. They forgot what they had conceded and urged in asking their charters; namely, that they were not private money-making concerns, but were public carriers under wholesome restraints.

Still, even yet these railways tacitly admit that they are entirely subject to the law. They admit this in several ways; for example: by quietly submitting to a restriction as to the maximum fare for passengers and by making those rates public and—in the main—uniform and regular, and by not discriminating against individuals. But if the law has a right to regulate passenger traffic why, not freight traffic too? They admit it, too, by their anxiety in regard to legislation and by the vast sums they spend, directly or indirectly—as abundantly proved--to secure "friendly legislation." If they knew the law had no right to regulate their freight rates they would simply prove it in the courts instead of subsidizing or intimidating legislators, lawyers, juries and judges. If they were conscious of the *right* to charge whatever they chose on freight, or "whatever the traffic will bear," they would insist upon that right.

What, then, are some of the evils and acts of injustice on the part of the railways which, it seems plain, either state or national laws should correct? I answer, all discriminations that violate the general principle that all charges should be fixed, uniform, openly known and in proportion to the actual service rendered. Now the railways say the government has no right to inquire into or interfere with their private business, but they themselves do this very thing in the case of shippers; the whole system of "charging all the traffic will bear" implies an inquisition into the private business of shippers. It costs, for example, a fixed sum to transport a ton of gold-bearing ore from one fixed point to another, and that cost depends not in the least on the value of the ore; but the railway insists on knowing what the ore assays per ton, so as to know how much it is safe to charge. The man whose ore assays $300.00 per ton must pay, perhaps, ten times as much per ton as he whose ore assays $30.00 per ton, because, forsooth, he can afford to pay more. Why not charge the rich man ten times as much as the poor for a passenger ticket on the same car? He can afford to pay it. Are not individual discriminations as unjust and offensive in freights as in passenger rates? Has not the law the same right to prevent them? These discriminations among individuals enrich one and impoverish another; one shipper with secret rebates in freights ruins his competitors and himself becomes immensely rich; and this oftentimes results adversely to a large community either of producers or consumers—it creates monopolies that work against the real interests of the community. The most familiar and most striking case of this kind is that of the Standard Oil Company; which, under a secret contract with the four great trunk lines of railway, has at last driven nearly all competitors to the wall, and now holds, essentially, a monopoly of the oil trade of the world. By this secret contract these railways agree to protect this company "against loss or injury from competition;" and already a large advance in prices of coal oil has resulted, and the same thing may occur in other lines of business under the secret favor of the managers of our great trunk lines. Now, it seems plain, that our laws should, in some way, prevent the railways—the servants of the public—from working against the interests of the public; joining secret hands to build up monopolies and break down that free competition among producers and dealers which alone can secure fair and equitable prices and a fair distribution of wealth.

[The speaker here gave several apt illustrations in support of the position.]

Again, it would seem plain that law has a right to hinder these railways—these common carriers—from *discriminating against localities;* from charging more per ton or car for 1,000 miles, for instance, than for 2,000 miles. [Striking actual examples were here given.] For it is a natural and well-established principle that nearness to market enhances the value of products and of the farm-land or other real estate that produces them. Wheat and beef and farms, on this principle, should be higher in our Ohio towns than in St. Louis; but if, as is sometimes the case, seaboard freights from non-competing Ohio points are higher than from St. Louis, then, so long as these freight rates hold, these Ohio towns are placed *further from the seaboard than St. Louis.*

By this power of the great trunk lines to fix freights arbitrarily—and without even a semblance of justice or reason—they can make and unmake towns, build up and pull down fortunes and even cities and damage whole broad regions of country. [Facts and illustrations were given here also.]

Another evil to be regulated by law is the sudden advance in seaboard freights—to keep pace with the advance in prices in England. By such advance in 1879 a tax of about $50,000,000 was laid upon wheat alone; the railway kings advanced the rates and the wheat *paid the tax.* Would the public have endured as sudden a tax laid on the wheat by congress? Have the railways, then, more power than congress? [Here, also, were given facts and figures in support and illustration of the point made.]

One evil in passenger traffic deserves notice. Suppose I reach a certain point in traveling by one line and there touch or cross a rival line, and wish or need to complete my journey by this rival line; I find the time schedules purposely so arranged as to require a delay of several hours. This nuisance should not be tolerated; the railways are the servants of the people, and trains should be run and schedules arranged for the convenience of the public. The traveling public should be left free to choose its route, it would seem; if railways fight each other they should not make the traveling public suffer for it.

But what is the remedy for these and other evils? All classes of citizens are interested in having the remedies quietly and justly applied. On this head, and in conclusion, I quote the judicious words of Mr. Thurber in a recent Scribner's Monthly:

"If ever communistic views make headway in this country, it will be in consequence of the toleration of class privileges and disregard of our free institutions; these are the breakers ahead which every true patriot will pray that our ship of state may avoid.

"The immediate remedy is, the creation of an intelligent public opinion, through which reasonable limits may be placed upon the growth and power of corporate life.

"At present the corporations are masters of the situation, but with an intelligent public opinion thoroughly aroused, it is only a question of time when it will compel a fair adjustment of the relations between the people and the creatures the people have created."

No class of citizens are more conservative and less inclined to communistic views than *the farmers.* In the great railway strikes, which suspended traffic and came so near resulting in extended riot and even in insurrection, the railways found no stauncher friends and supporters in their real rights than the farmers. No class of citizens would more promptly have taken arms to quell insurrection and protect property than the great and intelligent class of agriculturists; but in the matter of discriminations, exorbitant rates and secret contracts in freights, it will, in time, be seen that they are

"Men who their duties know—but know their rights,
And knowing dare maintain!"

ESSAY ON WHEAT CULTURE.

By F. B. McNeal, M. D., *of New Carlisle, Ohio.*

[Read before the Farmers' Institute of Miami County, at Troy, Ohio, March 5, 1881.]

Mr. President and Farmers of Miami County:

In undertaking to discuss the topic of this hour I shall not presume to teach or to advance anything new upon the subject of Wheat Culture.

The magnitude of the wheat interest of America is indicated by the fact that it is the leading item of our exports, and from it our people derive a greater revenue than from any other single source. There is, perhaps, no other subject of greater moment to our whole country, and none around which so many interests cluster, as American Agriculture. No other interest calls forth the best efforts of so many willing hearts and hands, and yet there is, perhaps, no other which, in proportion to its magnitude, elicits so little brain-work, or to which are applied so few of the scientific principles which go so far toward making up the rationl, systematic and remunerative farm. Therefore, if, by the discussion of this subject, we shall be able to enlist a greater interest in Wheat Culture and a more thorough application of these principles, whereby we may be able to add more bushels to our product with less drain from our soil, we shall consider our time well spent, our intercourse a pleasure, and our labor a profit.

Wheat has been cultivated from the earliest antiquity, and has furnished the principal bread-stuff for most of the civilized nations of the world. It is not certainly known to have ever existed in the wild state and its origin is yet a matter of speculation.

The scriptural allusions to Wheat Culture, by the ancient Egyptians, are proofs of its antiquity, and Chinese history declares that it was introduced into that country more than four thousand years ago.

A comparison of the methods of these people with our own would be interesting, but time will not permit it here.

The varieties of wheat are very numerous, reaching, perhaps, into the thousands.

One individual has been known to cultivate over three hundred varieties, yet there are, perhaps, not over a dozen in general use at any one time in this country. The thermal limits for Wheat Culture are governed more by the elevation above the sea level, than by distance from the equator. About 57° is the minimum mean temperature at which the wheat-plant will mature.

Wheat is cultivated in most European countries. Some that were only a few years ago large exporters, do not now raise enough to supply the demands of their own people.

The United States is now the leading wheat exporting nation of the world. Following in their order are Russia, Denmark, Hungary, Turkey and Chili.

Much might be said of the comparative amount of these exports and the importance of the commercial legislation of this country. The marvellous increase in our aggregate annual production, while that of most other countries is diminishing, affords a hopeful outlook for the wheat-grower of America in the future.

The total value of the domestic exports of the United States for the year 1878, was $722,811,815, of this amount $121,967,737 or about 17 per cent., was for wheat and wheat flour. The history of most of the older wheat-growing sections of the United States, shows a regular decrease in the product per acre.

Many of the counties in the State of New York and other eastern states, as well as in portions of our own State, where the yield in the earlier part of the present century was from twenty to thirty bushels per acre, now return but six or seven.

During a period of fifty years in Ohio the average diminished from twenty-six to thirteen bushels. This will doubtless continue to be so in a measure, at least, as long as we have new lands to clear off and bring under cultivation. Yet, with our improved agricultural implements and better system of farming, the opposite ought to be the case, i. e., our yield per acre ought to increase instead of decreasing. That this decrease is due to a lack of system and thoroughness in farming is undoubtedly true. This is shown by the history of older countries and the older states at home. In England, where the land has been cultivated for centuries, the average yield is kept up to thirty-six bushels per acre. In many localities in New York and Pennsylvania, lands that had been considered worthless, have been made to produce thirty to forty bushels per acre. And who of us has not noticed that if our neighbor farmed better than we he was almost sure to get a better crop. The statistics show us that in the State of Ohio, wheat (commercially considered) is by far the most important of all our agricultural products, bringing in 1879–80, about one-third of the income produced by the entire product of the State, including the income from butter, cheese, meat and wool. In the earlier history of the State, when all our soils were richly freighted with the humus or vegetable mould from the recently removed forests, when none of the elements of the plant-food had yet been extracted from the virgin soil, the cultivation of wheat was a mere physical operation, requiring no effort save that of plowing, sowing and reaping of the rudest sort. The wooden-plow, the brush-harrow and the reaping-hook, or sickle, are, perhaps, not beyond the memory of many present.

Gradually, these gave place to better implements, whereby more earth was turned up to receive the benefits of sunlight and air, and the surface better prepared to receive the seed. But with all that added facilities for physical effort under the system of continual extraction from, and no return to, our lands, the old adage of "drop by drop will wear the hardest rock" was applicable to the most fertile of our soils.

The following is a partial table of the wheat statistics of our State and county, compiled from such records as have been accessible to the writer. We give, below, the average yield per acre in the State for the last thirty-one years, and in the county for the last thirteen years:

Date.	Average yield in State—Bushels.	Average yield in county—Bushels.
1850	18.	
1851	15.2	
1852	14.1	
1853	12.	
1854	8.	
1855	13.8	
1856	10.2	
1857	14.	
1858	10.4	
1859	7.3	
1860	12.8	
1861	11.	
1862	12.	
1863	11.4	
1864	9.3	
1865	9.	
1866	4.5	
1867	11.5	
1868	11.3	11.3
1869	15.3	19.4
1870	11.3	14.1
1871	13.3	15.6
1872	11.2	12.
1873	12.6	16.
1874	14.5	15.9
1875	9.2	9.5
1876	10.2	9.6
1877	15.6	13.4
1878	16.6	18.7
1879	17.8	24.4
1880	18.1	22.2

From the above, it will be seen that the State average, beginning in 1850 with eighteen bushels, did not again reach that figure until 1880.

That during the first fifteen years there was a gradual, though not regular decrease, reaching the bottom in 1866, when the average in the State was only 4.5 bushels per acre.

That during the last fifteen years there has been a gradual, though not regular increase, until 1880, when the average yield per acre reached 18.1 bushels, or one-tenth better than in 1850.

In the county, owing to the more than average fertility of the soil or later development of the country, the lowest average was not reached until 1875 and 1876, when the yield was 9.5 and 9.6 bushels, respectively. The question arises, whence this continued decrease, until a certain period and subsequent increase?

The increase comes, evidently, from a better understanding of the science of agriculture and a realization of the fact that some means must be devised, whereby we should return to the soil those elements which had been constantly drained from it, and the removal of which had well-nigh exhausted its fertility. The immense expanse of western prairie, with her Sullivants, Dalrymples, and other corn and wheat-kings; California, with her great wheat ranches, yielding forty, fifty, sixty, and even seventy bushels per acre, made it a question of vital importance, whether the raising of wheat in the State of Ohio should become a thing of the past, and our agriculture should so far be pronounced a failure. Already in 1869, this question had attracted the attention of some of our best agriculturists.

Gravely and earnestly was it discussed at the Agricultural Convention of that year. Dark were the forebodings and unpromising the prognostications of many who had our best interests at heart.

A resolution being offered before that Convention, instructing the State Board of Agriculture to offer a large premium for the greatest amount of wheat raised on one acre of land in 1870, the following are some of the remarks made upon this subject:

Mr. Welch, of Richland county: "Wheat-growing in the State of Ohio is likely to become a failure from some cause or other."

Mr. Welch, of Belmont county: "It is a lamentable fact that this product is yearly diminishing, and is likely to run down and become a failure."

Mr. R. R. Donnelly: "Without some liberal premium, to encourage the agricultural interests of the country, we are gone up. This is a matter involving our own existence."

Mr. G. S. Innis, of Franklin county: "No doubt most of the thinking men of this Convention feel that the glory of Ohio is departing, so far as the wheat crop is concerned. We should ascertain what is taken from the soil and not returned."

Judge Lang: "The time has long since gone by when you could cultivate wheat by chance, and get a crop as we used to, from the virgin soil. In order to raise wheat in Ohio with profit, we must properly prepare the soil and manage the cultivation of the wheat on scientific principles, or one-half the labor will be lost. When we read the reports of Wheat Culture in foreign lands, and find how much they produce to the acre, our minds are forced to the conclusion that we will have to place the culture of wheat in Ohio on a much improved basis, before we can hope to produce the results we should."

Amid such comments as these, a premium of fifty dollars was offered for the greatest yield of wheat per acre, and soon we see the maximum yield increasing from below forty to above sixty bushels per acre.

And in our own county, on a field of ten acres, an average yield of fifty-five bushels has been raised within the last two years, while the aggregate yield of Miami county now reaches almost a million dollars' worth per annum.

In the face of these facts, then, who can say that "the glory of Ohio is departing," or that profitable Wheat Culture in Miami county is a thing of the past. Rather are we not yet upon the threshold of the new era of agriculture in this country.

Propelled by the impetus of more brain-work and less blind groping; directed by the surer teachings of scientific principles in labor; guided by the experience of those who have applied these principles before us, we may confidently expect more light and knowledge, and with it better pay in Wheat Culture among us.

But says one: How can the farmer find time to master geology, chemistry, botany or physiology, and apply them to his daily pursuits? The answer is plain. Every farmer is no more expected to master these sciences than he is expected to master astronomy, but it does not follow because every man cannot become an astronomer, therefore, astronomical truths are useless. Every man cannot become a mathematician, yet who is bold enough to say that there is no value in mathematical science. Many artisans shape their work in strict accordance with the geometrical law, who, never in their lives, saw the statement of a proposition or the demonstration of a truth in geometry. So when the sciences of chemistry, botany, physiology or geometry have established truths beneficial to Wheat Culture, the farmer may apply them without knowing the process by which they have been attained. The cultivator of the soil may thus profit by the discoveries of science, however limited may be his own scientific knowledge. There are in our midst many laborious and intelligent farmers, who may, with truth, be classed as scientific cultivators of the soil, and it is one of the most encouraging signs of the times that the numbers of such men are steadily on the increase. It is by far the greatest merit of associations like the present that they promote the growth and increase the usefulness of such men. May we not, then, boldly assert that with all the help at our command, the wheat revenues of Ohio can and shall be largely increased.

Among the things that have aided and will still aid in producing this result, may be classed the following:

1st. A better and more thorough preparation of the soil.

2d. A more careful selection and better preparation of the seed.

3d. A better planting and cultivation of the crop.

One of the first matters of importance in the preparation of the soil, is a thorough drainage for soils with a heavy clay substratum.

There are vast tracts of our lands now almost entirely worthless, which might be rendered eminently fertile for the culture of the wheat crop by judicious under-draining. There is, perhaps, a much larger portion of our lands which now produce fair crops when the seasons are favorable, whose productions might be very materially increased by thorough drainage.

An eminent authority has said that "all soils should be under-drained whose substratum will not remove all water not absorbed by the soil itself."

By thorough under-draining of such soil it will become dryer in wet weather and wetter in dry weather; it will, also, become warmer in cool weather, and cooler in warm weather than undrained soil.

These seemingly paradoxical circumstances arise from the following causes:

The drained soil, in wet weather, is more readily relieved of the surplus water after saturation, and the same soil remains moist longer in dry weather, because, by aeration, it is made more porous, thus being enabled to absorb and hold a greater amount of water than the same soil without drainage. The process of evaporation is a cooling process, and the increased power of absorption of the drained soil promotes the absorption of atmospheric moisture and the night dews, which form a water supply for the evaporation and cooling process of next day's wind and sunshine; thus, by this reciprocal operation, the soil is kept cooler during the hot, dry months of summer, while the prompt removal of surplus water in cold weather or during the approach of cold weather, leaves a less amount of water to be formed into ice in the cold of winter;

consequently a less melting of ice and absorption or rendering latent of heat during the months of spring. Hence, it will readily be seen how drainage will be eminently proper in the culture of wheat, on most of our uplands.

Another accessory to drainage in the regulation of moisture in our soils, is the determination of its texture or the regulation of that principle called humus or vegetable mould, whereby it is enabled to absorb the greatest amount of moisture and retain it the longest. Many of us have upon our lands more or less of soil made up of coarse sand and gravel, through which water percolates rapidly, and which, during the hot months, become dry and parching to vegetation.

We know, too, that failure to raise large wheat crops on such lands is in nowise owing to a lack of fertility in the soil, because during the earlier and wetter portion of the season, the crops thereon are most vigorous and hardy.

We also have another class of land, which, during the wet season, lies water-logged without the power of absorption or percolation, a mixture of clay and water similar to a mortar-bed, and, when the water is removed, it soon becomes dry and hard, almost like a sun-burnt brick. Such land will not produce the highest type of wheat, though it contain all the elements of plant-food in the most eminent degree, and though we apply the best commercial fertilizers abundantly. Swamp muck has an over-abundance of humus, and allows too rapid evaporation. The vast wheat fields of our western prairies and those of Russia, are said to owe their wonderful productiveness to the proper distribution of this principle, whereby they never dry up. I have seen a wheat field in the Sate of Nebraska produce twenty-six bushels per acre without a drop of rain from the time it was sown until it was harvested. Yet it is a matter of dispute among scientists, whether humus is a necessity to fertility of soil. In support of the negative of this proposition the fine wheat crops of New Mexico and Utah are cited, where more of this element exists, though here the water supply is kept constant by means of irrigation.

In our climate, where we depend upon the rains for moisture, and on this principle for retaining it during the summer drouth, we should so cultivate our soil as to enable it to absorb and retain the greatest amount of moisture. These are best supplied by means of all the coarse vegetable manures, and the latter are best plowed into our soils. We next are ready in the preparation of our soil for the application of those fertilizers which supply plant-food, or which aid in its assimilation.

It is the object of science in agriculture to get at bottom facts and build up from the foundation stones; and science has demonstrated that the wheat-plant requires for its growth, oxygen and carbonic acid from the air and water; nitrogen, sulphuric acid, phosphoric acid, potash, lime, magnesia, allumina and oxyde of iron from the soil. These are supplied measurably by the mineral and commericial fertilizers, together with the nitrogenous manures applied either before plowing or as a top dressing. The next operation in the preparation of the soil is plowing, and in the labor of Wheat Culture there is nothing of greater importance than good plowing. To do this, we must have a good plow—of these there are many in the market. As a rule, I would say, always plow a narrow and deep furrow, taking care that the earth is thoroughly inverted, and all manure and vegetable matter is completely covered. The propriety of deep plowing, on heavy soil, is so obvious that it scarcely needs elucidation. On all cold clay soils, deep or sub-soil plowing becomes an excellent system of drainage, drawing the surface water from the roots of the young plant, thus preventing much of the winter freezing out. By deep plowing we get a more complete incorporation of vegetable matter, and thus we accelerate the mysterious process of aeration and let loose the rich store-house of elements necessary to the production of the crop. Next, the surface should be thoroughly pulverized, and then we are ready for the seed. What to sow, when to sow, and how to sow, are the important questions in this division of our subject. In selecting wheat for seed, we should first decide what varieties we wish to sow, and in this we cannot be too careful. No doubt many thousands of dollars might be saved to the farmer, were he more careful to choose seed adapted to the ground on which he desires to sow it. As a rule, I would say, choose those varieties that will yield the greatest number of bushels on your soil, though the quality of flour produced is a desideratum not to be ignored.

Having selected our varieties, we should get the very best article we can, and then make it thoroughly clean, not only by renovating, but by the removal of all imperfect or small kernels. I am of the opinion that if more care was taken in the preparation of our seed, we would have less deterioration, and there would be much less "running out" of varieties of wheat among us.

When should we sow? Neither too early nor too late. In our climate, usually from the 15th to the 25th of September. Exceptionally, very early and very late sowing have produced good crops. I have known as late as the 13th of November sowing produce a good crop, and as early as the 25th of August has done well, but these are not the rule, by any means. Very early sowing is subject to the ravages of insects, while very late sowing does not get sufficient root to withstand the freezing of winter.

How to sow: With the very best drill that you can get. Broadcasting is so thoroughly eclipsed by the drill that anything against it is unnecessary here. Always sow deep enough to cover the grain well, but not so deep as to never get it out again. Some writers have lately advocated the drilling of wheat wide apart, and cultivating the soil between the drills in the spring. Of this I have had no experience; hence, cannot speak advisedly, though it certainly deserves a trial. How much seed should we sow? The amount of seed in this country varies with the soil in which it is placed. Usually a bushel and one-half to the acre; this quantity varies very much as to the kind of soil you are sowing in. The better and more highly cultivated the land the less quantity of seed required.

Much might be said in regard to the harvesting of the crop, but we will leave the subject here.

When we have, by application and scientific research, put back all that we have taken from the soil; when we have increased our wheat yield to compare with the best and oldest of the wheat growing countries of Europe; when the aggregate yield of our country has increased four-fold; then, and not until then, may we arrogate to ourselves the title of scientific farmers, or rank with Agriculturists of the world.

REPORT OF FIELD EXPERIMENTS WITH FERTILIZERS—1880.

BY PROF. W. O. ATWATER, WESLEYAN UNIVERSITY, MIDDLETOWN, CONN.

[As Commercial Fertilizers are now coming into very extensive use in Ohio, and as no accurate field experiments have yet been made here as a guide to their intelligent use, we reprint, by permission, the following valuable paper from the Connecticut Agricultural Report for 1880, and call especial attention to the last four pages of it]:

The report of the Connecticut Board of Agriculture for 1877 contained accounts of field experiments with fertilizers, suggested by the State Agricultural Experiment Station, and conducted by a number of intelligent farmers in the State.

The outgrowth of these, in the form of extended series of experiments, has been reported in succeeding volumes of the same publication. I hope to be able, in the not too distant future, to collate the data of the four seasons' experimenting, and publish them with needed details, and add such inferences as to methods and results as may seem warranted. The present article will be devoted mainly to an exposition of the principal results of the work during the fourth season, 1880.

The experiments of the four seasons have been conducted by several Agricultural Colleges, and not far from three hundred farmers, in most of the States east, and some west of the Mississippi, and in several of the provinces of British America. Their extensive circulation is due in large part to the American Agriculturist, which proposed them to its readers arranged, and with the hearty co-operation of several prominent dealers in fertilizers, to provide the materials, subject to analysis by the writer, and at prices just covering the cost.*

I may say that both the journal which proposed the experiments, and the parties who put up the fertilizers displayed a great deal of enthusiasm in the undertaking, doing this, as I happen to know, at pecuniary cost to themselves, and with no prospect of gain other than would come with the credit for encouraging the enterprise. Details of plan and execution of the experiments are given in the Appendix. The chief labor of arranging and tabulating the results has been performed by my friend and assistant, Mr. Miles Beamer, C. E.

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*The following firms co-operated in furnishing the materials: Messrs. H. J. Baker & Brother, 215 Pearl street, New York; The Bowker Fertilizer Co., 3 Park Place, New York, and 43 Chatham street, Boston; and the Mapes Formula and Peruvian Guano Company, 158 Front street, New York.

GENERAL AND SPECIAL EXPERIMENTS.

These experiments have been of two classes: The first, which may be called general experiments, involved the use of seven or eight or more different kinds and mixtures of fertilizing materials containing nitrogen, phosphoric acid, and potash. These were intended to be used by farmers as a means of learning by actual trial what fertilizing ingredients would most benefit their soils and crops. The second class, or the special experiments, have been of more complicated character, and have had for their object the study of the feeding capacities of some of our more common cultivated plants, with the special reference to the nitrogen supply.

THE REPORTS AND THEIR VALUE.

With each set of experimental fertilizers were sent blanks, on which the experimenters were requested, if convenient, to report results. It has been a matter of surprise as well as satisfaction, not only that so many of the experimenters should have taken the pains to make the reports, but also that they should have done this so well. I have received, from the four seasons' experiments, nearly two hundred and fifty of these reports. Some are brief, most are well filled, and many entirely so, while several have additional interesting and suggestive statements covering a number of pages of foolscap, for which there was not room on the blanks. Samples of these reports are given beyond.

The previous accounts have been directed largely to the results of the general experiments, especially in their application to the practical use of commercial fertilizers. It was, however, my feeling from the start that the experiments might gradually be made to assume a more strictly scientific character; that they might be successfully directed toward the study of some of the more abstruse problems of soil fertilization and the nutrition of plants. It was for this purpose that the special experiments were devised, and their results will form the chief topic of the present article. The results of the general experiments, as would be expected, coincide in the main with those of previous seasons. For a general statement of them, therefore, I may refer to the previous reports, and shall incorporate herewith only such facts as are new or of especial importance. As will be seen, however, the outcome of the general experiments adds essentially to that of the special experiments to which attention is at present invited.

The experiments we are discussing bring us face to face with one of the most important problems with which agricultural chemistry has to deal, and at the same time throw some new light upon it. I refer to what may, perhaps, be most properly called

THE FEEDING CAPACITIES OF PLANTS,

Their power of gathering their supplies of food from soil and air, and the effects of different ingredients of plant-food upon their growth.

A vast deal of experience in the laboratory and in the field bears concurrent testimony to the fact, though we are still deplorably in the dark as to how or why it is so, that different kinds of plants have different capacities for making use of the stores of food that soil and air contain. Thus leguminous crops, like clover, do some how or other, gather a good supply of nitrogen where cereals, such as wheat, barley, rye, and oats, would half starve for lack of it, and this in the face of the fact that leguminous plants contain a great deal of nitrogen, and cereals relatively little. Hence, a heavy nitrogenous manuring may pay well for wheat and be in large part lost on clover.

From statements bearing upon this subject in Reports of Experiments in 1878 and 1879, I may, perhaps, be permitted to cite the following:

> As long ago as 1850, Dr. Pusey said in a report "*On the Progress of Agricultural Knowledge during the last Eight Years*" in the Journal of the Royal Agricultural Society (vol xi. 1850, pp. 385–6), "At present we can only say that the three leading principles of manure are, 1. Ammonia; 2. Phosphorus; and probably 3. Carbon;" and again, "The upshot of the whole is that practically, as far as artificial manures are concerned, we need not dwell upon the mineral ingredients, but must give ammonia to wheat, and to turnips phosphorus." Since Dr. Pusey's time we have got hold of very many new facts, theories of manuring have multiplied, and fertilizers for special crops, based upon various theories, have come into very general use.

THE VILLE FORMULAS AND SYSTEM OF MANURING.

Of the numerous formulas for fertilizers for special crops, no others have attracted so much attention as those of Prof. George Ville of Paris, whose experiments at the Government Farm at Vincennes during twenty-five years or more have been much discussed. These formulas form a part of a "system of manuring" which may be briefly explained as follows:

According to Ville, of the dozen or more constituents of dung, four—nitrogen, phosphate of lime (phosphoric acid), potash, and lime, which constitute about one tenth of its weight—are "the regulators, *par excellence*, of production, and the only ones with which agricultural industry need occupy itself." His formulas for "complete manures" supply these four ingredients—the *nitrogen* as nitrate of potash (saltpeter) nitrate of soda, or, sulphate of ammonia; the *phosphoric acid* in the form of superphosphate; the *potash*, in either nitrate of potash, or other potash salts, and the *lime* as sulphate of lime (land plaster). He says that "the mixture of these substances has the same properties as dung." The "complete chemical manure is to the barn-yard manure what the metal is to the ore." "It is a farm-yard manure divested of all useless matter." "No one can do any good without the co-operation of the other three (though if either is supplied in abundance by the soil it need not be included in the manure). Given the others, and each has its own predominant action for a certain list of crops.

"DOMINANT INGREDIENTS."

Ville gives "the name *dominant* to the ingredient which, for a given crop, plays a more important part than the others." Thus:

"*Nitrogen* is the predominant ingredient for the cereals, as Wheat, Barley, Rye, Oats, and for Colza, Sugar-Beet, Hemp, etc."

"*Potash* has an especial influence upon Peas, Beans, Clover, Lucern, Flax, Potatoes, etc."

"*Phosphoric acid* is especially beneficial for Turnips, Rutabagas, Radishes, Indian Corn, Sugar Cane, etc."

"*Lime* seems to exert no especial preponderating action upon any plant, but is necessary for all."

The practical inference is that in preparing a fertilizer for a given plant, we must reduce the subordinate ingredients as much as we can, and put in a good deal of the dominant. To sustain his propositions, Ville cites a great many experiments, some made by himself in pots or in the fields of the Experimental Farm at Vincennes, and others by farmers in France and elsewhere. From these experiments Ville infers that nitrogen is the dominant ingredient for wheat and the sugar-beet, and consequently he puts a large proportion of it in his formulas for these crops. He insists, furthermore, that the form of combination is important, and uses sulphate of ammonia for wheat, nitrate of soda for sugar-beets, and so on. For clover, beans, peas, etc., he recommends little or no nitrogen, because the plants are found to get very little if any good from nitrogenous manures. He explains this by assuming that such plants get all their nitrogen from the air, and do not need it in fertilizers. Of the theory once held by many, that plants assimilate the free nitrogen of the air, Ville has been for some years almost the only prominent defender. He claims that clover gathers all its nitrogen from the air; that barley and rye get 80 per cent., wheat 50 per cent., and sugar-beet 60 per cent. from the air, and the rest from the soil.

But by far the most valuable contribution to our knowledge of these subjects comes from the classic

EXPERIMENTS BY MESSRS. LAWES AND GILBERT, IN ENGLAND.

In their experiments, wheat, which has for thirty years received mineral manures alone, has averaged 16¾ bushels per acre yearly, against 14 bushels unmanured. The addition of sulphate of ammonia, with the same repeated cropping of the same land, brought the average up to 36 bushels per acre. The leguminous crops have told just the opposite story. Though they contain a good deal more nitrogen than wheat, they respond but slightly to nitrogen, and are greatly aided by mineral manures. In an experiment on the mixed herbage of grass land, continued through twenty years, mineral manures without potash brought up the total crop 47 per cent., and the nitrogen in the crop 38 lbs. per acre annually above the unmanured. And when potash was added to the mineral manures, the crop was 67 per cent. larger, and contained 56 lbs. more nitrogen per acre than the unmanured, the increase in nitrogen being in large measure due to the leguminous plants which came in under the influence of the potash, and replaced plants of other families.

In one case Messrs. Lawes and Gilbert found that a soil from which a clover crop had just been removed contained more nitrogen than it did before the clover was put in; that, in other words, the soil to the depth of nine inches at least, was positively enriched by the growth and removal of a highly nitrogenous (clover) crop.

Such facts help to explain why it is such good farm practice to use mineral fertilizers, as plaster, bone, ashes, and potash salts, for mixed grasses and clover; and nitrogenuos materials, like guano, sulphate of ammonia, and nitrate of soda, for grain crops. They help us to understand why clover is such an excellent preparatory crop for wheat, and so economical generally for plowing under to bring up poor soils. It gathers and stores plant-foot, particularly nitrogen, and thus is itself a fertilizer.

In Messrs. Lawes and Gilbert's experiments, the cereals have been most helped by nitrogen, next by phosphates, and very little by potash; the legumes have responded to mineral manures, especially potash, and paid little heed to nitrogen except where on meadow land they have, under the influence of nitrogenous manuring, gradually run out, and the grasses have taken their place, just as they have replaced the grasses when mineral manures alone were used; turnips have done best with superphosphates; and potatoes, I think, have seemed to demand potash along with nitrogen and phosphates for their best development.

THE RELATION OF THE MAIZE PLANT TO THE NITROGEN SUPPLY.

Doubtless the most important phase of this question is the relation of the plants to the nitrogen supply, as is illustrated by the much-vexed question as to the power of the maize pfant to gather its nitrogen from natural sources.

Mr. Lawes has written a letter to the Secretary of the New Jersey Board of Agriculture, and also another letter to Mr. Harris, discussing the same question, and insisting, as Mr. Harris also does, upon the need of experiments to test it. He says, "It is of very great importance to know to what extent Indian corn follows the same law [as the cereals]; that is to say, on a soil which under a liberal supply of potash and phosphoric acid, will yield 20, 30, or 40 bushels of corn, what increase is obtained by a liberal supply of ammonia or nitrates?"

In his excellent little book, "Talks on Manures," Mr. Harris says: "We know less about the manurial requirements of Indian corn than almost any other crop we cultivate." The main question is the nitrogen supply—whether, like other cereals (wheat, barley, oats, grasses, etc.), corn has but little power to get nitrogen from natural sources, and requires nitrogenous fertilizers; or, whether, like leguminous plants, (clover, beans, peas, etc.), corn can gather the nitrogen for itself; that is, whether corn is, like wheat, an exhausting crop, or, like clover, a renovating crop. Mr. Harris is rather inclined to class it with the cereals, but mentions some facts which indicate that in feeding capacity it is more like the leguminous plants. If the latter is the case, then Indian corn grown and consumed on the farm will, "like clover, enrich the land—the corn will gather up the nitrogen that the wheat crop cannot appropriate, and when the corn and stalks are fed, some 90 per cent. of the nitrogen will be left in the manure."

In a very interesting letter to Mr. Harris, Mr. Lawes discusses this question at length. He is inclined to class corn with the cereals, though he would expect that with mineral fertilizers it would, during its longer period of growth, get more food from soil and air, and especially more nitrogen, and give a larger produce than wheat. At the same time he adds: If wheat and maize were grown continuously for experiment, I should expect that maize, if manured with manure such as wood ashes and superphosphate, would give a larger produce than wheat. But to produce full crops, both would require, in addition, large quantities of nitrogen to be supplied as ammonia or nitric acid."

In illustration of the application of these theories and results of experiments, I may cite several

FORMULAS FOR FERTILIZERS FOR CORN.

In a letter to the Treasurer of the Massachusetts Society for Promoting Agriculture, Mr. Lawes says: "The best possible manure for all the graminaceous crops—wheat, barley, maize, oats, sugar-cane, rice, pasture grass—is a mixture of superphosphate of lime and nitrate of soda."

M. Ville urges what he calls "complete fertilizers," containing nitrogen, phosphoric acid, potash and sulphate of lime, and regulates the proportions by the assumed power of the plant to get its food from soil and air, and the special effects of the different fertilizing substances upon it. Classing corn with sugar-cane, sorghum, turnips, rutabagas, artichokes, he makes phosphoric acid the "dominant" or most efficient ingredient. Below is his formula for an acre of corn, with the amounts of valuable ingredients and their costs in the forms he recommends. The last column gives the cost in equally good but cheaper materials, like nitrate of soda, guano, bone and potash salts, which, with many important facts in agricultural chemistry, his system curiously ignores.

Prof. Stockbridge, of the Massachusetts Agricultural College, announced some time since a series of fertilizers for different crops, based upon the percentages of nitrogen, phosphoric acid and potash which the crops are found, by analysis, to contain. Thus he recommends for Indian corn:* "To produce 50 bushels of the grain, and its natural proportion of stover to the acre, more than the natural yield of the soil; and in like proportions for other quantities, use"—the formula below. To the formula I append cost of materials as recommended by Prof. Stockbridge, and the cost of same ingredients in cheaper forms, basing estimates here, as elsewhere, upon current market rates, with $5 per ton added for freight and handling.† To resume, we have—

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*Report of Mass. Agricultural College, 1876, p. 35.

†The present prices of some of the materials are, however, higher than the above.

Mr. Lawes' Formula.

"The best possible manure," a "mixture of nitrate of soda and superphosphate."

Ville Formula for One Acre.

Materials.	Ingredients.	Cost in formula.	In cheapest form.
Nitrate of potash, 180 lbs.,	Nitrogen, 24 lbs.	$9.20	$4.80
Acid phosphate of lime, 540 lbs.,	Phos. acid, 81 lbs.	9.45	9.45
	Potash, 79 lbs.	7.00	3.56
Sulphate of lime, 360 lbs		1.44	1.44
		$27.09	$19.25

Stockbridge Formula for One Acre.

Materials.	Ingredients.	Cost in formula.	In cheapest form.
Sulphate of ammonia, 320 lbs.,	Nitrogen, 64 lbs.	$15.20	$12.80
Superphosphate, 248 lbs.,	Phos. acid, 31 lbs.	4.34	4.34
Muriate of potash, 154 lbs.,	Potash, 77 lbs.	3.46	3.46
		$23.00	$20.60

Mr. Lawes omits and Profs. Stockbridge and Ville supply potash in their formulas. All include nitrogen, Mr. Lawes specifying no quantity, Mr. Ville using but little, and Prof. Stockbridge a very large amount. Ville lays chief stress on phosphoric acid, which he calls the "dominant" for corn, while the Stockbridge formula gives very little of phosphoric acid, and makes nitrogen the most important ingredient.

It is thus evident that men who ought to be well fitted to judge differ very widely in their views upon these most important subjects, and that nothing but actual experiment will bring us the certain knowledge that is needed.

SPECIAL EXPERIMENTS UPON THE EFFECTS OF NITROGENOUS FERTILIZERS.

For the systematic study of this question, a special experiment was devised in 1878, and conducted by a number of gentlemen. Similar series were repeated in 1879, and, with slight variations, in 1880. The plan and purpose of the experiments are set forth in the following statements, prepared for the use of experimenters of the season of 1881, but similar to one sent out to the experimenters of 1880:*

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*The differences between the schedule of 1881 and those of previous seasons are, briefly, as follows:

In the experiments of 1881 nitrogen is supplied in group IV as ammonia, and in group V as organic nitrogen, while in the experiments of 1878 and 1880, as may be seen in table one, the nitrogen is supplied in group IV as "nitrogen" mixture, and in group V in other forms. A further difference is found in group V, which, in 1878 and 1880, supplied the nitrogen as a 2-3 ration, but in 1881 in varying quantities. I may add that, as the result of the experience of three seasons, the arrangement of 1881 seems to me very well adapted to its purpose. This arrangement will very likely be continued for some years to come.

[The schedules referred to in this article, and found in the Connecticut Report, were necessarily omitted here. This leaves the article incomplete, but still of great value].

SPECIAL EXPERIMENTS FOR NITROGEN TESTS, 1881.

EXPLANATIONS.

The Object of this experiment is to test the effects of nitrogenous fertilizers in different amounts and combinations upon the growth of the plant, and inferentially its capacity to gather its nitrogen from natural sources.

The Fertilizers.—The ingredients and amounts are such as are used in ordinary practice, Phosphoric acid and Potash being supplied in about the proportions that occur in a corn crop of fifty or sixty bushels, and Nitrogen in one-third, two-thirds, and full amount in same crop.

Forms of Nitrogen.—The Nitrogen is supplied as Nitric Acid in Nitrate of Soda; as Ammonia in Sulphate of Ammonia, and as Organic Nitrogen in Dried Blood.

Quantities of Nitrogen.—The Nitrogen is applied at the rate of twenty-four pounds per acre in "one-third ration"; forty-eight pounds per acre in "two-thirds ration"; and seventy-two pounds per acre in "full ration."

Arrangement of Plots and Fertilizers.—The ingredients are supplied as:

Partial Fertilizers,	Group I. Nos. 1—3. Each by itself. Group II. Nos. 4—6. Two by two.	Thus testing the effects of ingredients separately, and capacity of soil.
Complete Fertilizers,	Group III. Nos. 7—9. Nitrogen as nitric acid in nitrate of soda. Group IV. Nos. 10—12. Nitrogen as Ammonia in sulphate of ammonia. Group V. Nos. 13—15. Nitrogen as organic nitrogen in dried blood.	Nitrogen in one-third, two-thirds, full ration.

This schedule provides for twenty plots, of which two are unmanured, and eighteen supplied with the experimental fertilizers. Of the latter, three, Nos. 6a, 6b and 6c, are duplicates of the "Mixed Minerals," No. 6. This gives four plots of "mixed minerals," one on each side of the three groups, III, IV and V, in which latter the effects of nitrogen are to be tested. This duplicating the "mixed minerals" serves the three-fold purpose of testing the uniformity of the soil, replacing unmanured plots, and showing more accurately the actual effects of the nitrogen.

DIRECTIONS.

Read carefully the explanations herewith, and the "Directions for the Experiment" and "Condensed Directions," which go with each set of fertilizers. The main points are to (1.) Select level or nearly level and uniform land. (2.) Lay out the plots accurately. (3.) Distribute the fertilizers evenly over the plots. (4.) Conduct the experiment carefully, and (5.) Make an accurate report, for which blanks will be sent in due season.

Please indicate the boundaries of the plot by *strong* stakes, and, if convenient, arrange to *repeat the experiments with the same fertilizers on the same plots through a series of years and crops.*

SIZE OF EXPERIMENTAL FIELD. "ONE ACRE" AND "TWO ACRE" EXPERIMENTS.

Experience implies that, under ordinary circumstances, plots of one-twentieth acre each, making one acre for the twenty plots, will suffice. Where convenient, however, it would be well to use two acres. This has been done to advantage when two crops, as corn and potatoes, have been grown side by side on each plot for comparison, an excellent plan for testing the comparative feeding capacities of the plants.

If practicable, leave an unmanured strip, say three feet wide, between each two plots, to prevent the roots of each from feeding on fertilizers of the next. This will increase the whole area, but will make the experiment much more valuable.

KIND OF CROP.

The kind of crop will, of course, be selected by the experimenter. Experiments are needed upon all our ordinary crops, but especially on wheat, barley, rye, oats, corn, sorghum, grass, clover, onions, potatoes, roots, and, in the South, sugar cane and cotton.

EXPERIMENTAL FERTILIZERS.

SPECIAL NITROGEN SET, 1881.

Cost of "Acre Set," $12.00—"*Two Acre Set,*" $22.00.

Number.	Materials.	Amounts.	
		Acre Set. For 1-20th acre plots.	Two Acre Set. For 1-10th acre plots.
1	Nitrate of Soda	7½ lbs.	15 lbs.
2	Superphosphate	15 "	30 "
3	Muriate of Potash	7½ "	15 "
4	Nitrate of Soda Superphosphate	7½ " 15 "	15 " 30 "
5	Nitrate of Soda Muriate of Potash	7½ " 7½ "	15 " 15 "
6	Superphosphate, Mixed Muriate of Potash, minerals	15 " 7½ "	30 " 15 "
7	Mixed minerals, as No. 6 Nitrate of Soda	22½ " 7½ "	45 " 15 "
8	Mixed minerals, as No. 6 Nitrate of Soda	22½ " 15 "	45 " 30 "
9	Mixed minerals, as No. 6 Nitrate of Soda	22½ " 22½ "	45 " 45 "
10	Mixed minerals, as No. 6 Sulphate of Ammonia	22½ " 5⅝ "	45 " 11¼ "
11	Mixed minerals, as No. 6 Sulphate of Ammonia	22½ " 11¼ "	45 " 22½ "
12	Mixed minerals, as No. 6 Sulphate of Ammonia	22½ " 16⅞ "	45 " 33¾ "
13	Mixed minerals, as No. 6 Dried Blood	22½ " 11¼ "	45 " 22½ "
14	Mixed minerals, as No. 6 Dried Blood	22½ " 22½ "	45 " 45 "
15	Mixed minerals, as No. 6 Dried Blood	22¾ " 33¾ "	45 " 67½ "
6a	Superphosphate, Mixed Muriate of Potash, minerals	15 " 7½ "	30 " 15 "
6b	Superphosphate, Mixed Muriate of Potash, minerals	15 " 7½ "	30 " 15 "
6c	Superphosphate, Mixed Muriate of Potash, minerals	15 " 7½ "	30 " 15 "

SPECIFICATIONS.

Materials to be weighed and mixed with greatest possible care and accuracy, put in eighteen bags numbered as above, and each bag furnished with a label stating number and contents per schedule above. *Minimum* percentages as below:

Nitrate of Soda to contain 16 per cent. nitrogen; Sulphate of Ammonia, 21 per cent. nitrogen; Dried Blood, 11 per cent. nitrogen.

Superphosphate (dissolved bone black) to contain 15 per cent. of soluble, and 16 per cent. total phosphoric acid.

Muriate of Potash to contain 50 per cent. of potash.

No. 6, the mixture of Superphosphate and Muriate of Potash, is designated as "Mixed minerals." This is duplicated in Nos. 6a, 6b, and 6c. The same mixture forms the basis of Nos. 7 to 15, inclusive, which consist of "Mixed minerals," with the addition of nitrogen compounds.

The fertilizers were supplied, in part at cost and in part gratuitously, by the *Mapes Formula and Peruvian Guano Co.*, to whose interest and enthusiasm in promoting the experiments especial thanks are due.

Each set of experimental fertilizers was accompanied by directions for use (see above) and a blank, on which the experimenters were requested to record their observations and the results obtained.

The blanks were sheets of paper 12 x 19 inches in size, with spaces for numerous details as to soil, weather, culture and produce, which can perhaps be best shown by an example, of which one, the report of Mr. Charles Fairchild, is given in Appendix A.*

The names of the gentlemen who co-operated in the experiments are given, with detailed results of their work, in Appendix B, Table I.

Before entering upon the discussion of the special nitrogen experiments, it may be well to present the results of the general experiments, as is done in Tables II. and III., Appendix B.

SPECIFIC EFFECTS OF THE DIFFERENT FERTILIZING MATERIALS.

To make these plainer, Mr. Beamer has prepared what we have got into the way of calling a "Table of Differences," Table IV., Appendix B, which shows very clearly the effect of each material—nitrate of soda, superphosphate, and muriate of potash—both when used alone and when mixed with others. The effect of nitrate of soda alone is calculated by subtracting the average yield with no manure from that of the nitrate of soda plot. To find its effect with superphosphate, the yield of the phosphoric acid plot is subtracted from that which had the mixture of the two. The increase with the complete fertilizer over that with the superphosphate and potash salt gives the effect of nitrate of soda again, and so on. Of course it is understood that these differences in a given case do not express exactly the effect of the nitrogen, phosphoric acid, or potash, nor even that of the fertilizer containing them. The indirect action of the fertilizer counts for something, and the irregularities in the different plots often a good deal more. Indeed, one of the most interesting uses of this table is to show the uniformity or lack of uniformity of the action of the materials on the different plots, and hence the reliability of the experiment. In experiment No. 4, for instance, the plot with nitrate of soda shows 1.4 bushels less corn per acre than that with nothing, while the increase with nitrate of soda on the other plots over the corresponding plots without it is little or nothing. But when we come to the superphosphate we find an increase of from 11½ to 18 bushels in every case. The potash, on the other hand, brings either a small increase or a decrease on every plot. The results here are very uniform. But in other experiments, as No. 26, the figures are very far from uniform. This test of the uniformity of an experiment is a severe one. Any irregularity in the soil or other circumstance that changes the yield of one plot from what it should be is brought into full relief, and even exaggerated, by these subtractions, and is further multiplied by ten or twenty, or even more, in calculating from small plots to yield per acre.

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* For details as to the fertilizers used in the General experiments, see Appendix C, Note 2, and for general remarks upon the tables, Appendix C, Note 3.

This table of differences seems to me well worthy of study. I find myself referring to it always, and generallyto it alone, when I wish to find whether an experiment is uniform and reliable, and what are the effects of the different fertilizing materials.

We shall have to recur to the Table of Differences again. Meanwhile let us come back to the effects of nitrogen in the general and the special experiments together. This will be facilitated by the summary of the special nitrogen experiments in Table V (Appendix B).

The questions before us are :

1st. How do the crops experimented with get on with the "mineral" fertilizers, the superphosphate and potash salt ?

2d. More especially, how do they respond to nitrogen when added, in different forms and amounts, to the mineral fertilizers ?

3d. And finally, what inferences may we draw as to the feeding capacities of the plants, their power to gather their food from soil and air, and the effects of different materials upon their growth, especial reference being made to the nitrogen supply ?

EFFECTS OF NITROGENOUS FERTILIZERS UPON CORN.

Estimating a bushel of corn, with its cobs and stalks, to contain 1⅓ lbs. of nitrogen, and to be worth 80 cents, the effects of the nitrogenous fertilizers in the Special and in the General experiments may be summarized as follows, remembering that the superphosphate and potash salt, "mixed minerals," supplied the amounts of phosphoric acid and potash in a crop of not far from 55 or 60 bushels, which would also contain about the 72 lbs. of nitrogen :

AVERAGE RESULTS OF EXPERIMENTS WITH CORN IN 1878, 1879, 1880.

BUSHELS OF CORN AND POUNDS OF NITROGEN IN CROP PER ACRE.

	Corn, bushels.	Nitrogen, pounds.
11 Special Experiments.		
"Mixed minerals" alone	45.2	60.4
Same+24 lbs. nitrogen	54.5	72.7
Same+48 lbs. nitrogen	55.4	73.8
Same+72 lbs. nitrogen	56.7	75.6
75 General Experiments.		
"Mixed minerals" alone	43.4	57.8
Same+24 lbs. nitrogen	47.8	63.7

In the General experiments the mixture of 300 lbs. superphosphate and 200 lbs. muriate of potash brought, on the average of fifty-three experiments, about 43½ bushels of shelled corn per acre. The Special experiments, however, seem to me a fairer test of what the fertilizers may do, because, while made in all sorts of weather and on worn-out soils, they were nearly all on soils and in latitudes fit for corn, as many of the general experiments were not. In these the mixture of 300 lbs. superphosphate and 150 lbs. of potash salt, which can be bought for $8.25, brought on the average 45 bushels of shelled corn per acre.

The experiments of these seasons bear unanimous testimony to two things: The corn was helped but little by nitrogen in the fertilizers, and it gathered a good deal from natural sources. The increase of crop and of nitrogen in the crop will appear more clearly if we look at it another way:

Year.	In No. of Trials.	With Nitrogen.		The Average Increase of Corn was—	The Increase of Nitrogen in the Crop was—
		Amount per Acre.	Contained in Crop of—		
1877–8	29	24 lbs.	18 bushels.	5.9 bushels.	7.9 lbs.
	15	48 "	36 "	7.6 "	9.1 "
	6	72 "	54 "	9.3 "	12.4 "
1879	26	24 lbs.	18 bushels.	5.9 bushels.	7.9 lbs.
	14	48 "	36 "	1.9 "	2.5 "
	6	72 "	54 "	0.3 "	0.4 "
1880	20	24 lbs.	18 bushels.	0.6 bushels.	0.8 lbs.
	24	48 "	36 "	9.0 "	12.0 "
	10	72 "	54 "	14.3 "	19.0 "
1877–8–9–80	75	24 lbs.	18 bushels.	4.1 bushels,	5.5 lbs.
	53	48 "	36 "	6.2 "	7.9 "
	22	72 "	54 "	8.0 "	10.6 "

Or, considering the nitrogen as paying for itself when the value of the increase of crop that came with its use equaled or exceeded the cost of the nitrogen, and expressing the results in dollars and cents:

Year.	In Trials, Total Number.	With Nitrogen Amounts.	Costing:	The Nitrogen paid for itself in trials—	The Nitrogen failed to pay for itself in trials—	The Average Loss in the several trials was—
1877-8	29	24 lbs.	$5 62½	8	21	$0 90
	15	48 "	11 00	1	14	4 45
	6	72 "	16 50	None.	6	8 51
1879	26	24 lbs.	$5 62½	5	21	$0 90
	14	48 "	11 00	1	13	8 48
	6	72 "	16 50	None.	6	16 26
1880	20	24 lbs.	$5 62½	4	16	$2 34
	24	48 "	11 00	9	15	6 04
	10	72 "	16 50	2	8	10 10
1877-8-9-80	75	24 lbs.	$5 62½	17	58	$1 38
	53	48 "	11 00	11	42	6 66
	22	72 "	16 50	2	20	11 62

The nitrogen increased the crop enough to pay its cost in thirty trials out of one hundred and fifty. The pecuniary loss rose and fell with the amount of nitrogen used. With mineral fertilizers alone the crop gathered, by the above estimates, some 60 lbs. of nitrogen per acre.

A REMARKABLE EXCEPTION

To the rule that the corn is able to gather a fair supply of nitrogen for itself and is not much helped by nitrogenous fertilizers occurs in the experiment of Mr. Newton, "K, 1880." Here, every plot without nitrogen was a failure, every one with it gave a large yield, and the produce rose and fell regularly with the amount of nitrogen applied.

Why this was so, I surely cannot tell. A natural explanation—that the soil lacked nitrogen, because it had been lately cropped with oats and rye, and had not the mass of grass roots to supply nitrogen that the old grass lands of many of the other experiments had, is not supported by the testimony at hand. In Col. Mead's experiment, "F, 1879," the corn followed oats, and yet got no good from the nitrogen. In several cases in which the experiments have been repeated, corn following corn, with the same fertilizers, upon the same plots, as in Mr. Bartholomew's "C, 1879" and "1880," the nitrogen was as ineffective the second year as the first. So, likewise, in a similar experiment by Mr. J. W. Sanborn, Farm Superintendent of the New Hampshire Agricultural College, the yield of corn in 1878 was increased, in 1879 diminished, and in 1880 materially injured by nitrogen as sulphate of ammonia.* Mr. Sanborn's corn, like that of the other experimenters who have been repeating their trials, has been as persistent in doing well with mineral fertilizers alone, and getting its own nitrogen, as it has in refusing to respond to nitrogen in fertilizers.

WHERE AND HOW DOES CORN GET ITS NITROGEN?

This is a question I cannot answer. The prevailing opinion among agricultural chemists for some time, and one which I have shared, has been that plants get nearly all their nitrogen from the soil and very little from the air. But there are many facts which are very hard to explain on this theory, and I am, with many others, coming to very strongly suspect that plants do, somehow or other, get considerable nitrogen from the air. It may not be out of place to add that one of the public-spirited agriculturists of our State, Hon. J. W. Alsop, M.D., of Middletown, has undertaken to furnish appliances and defray the expenses of some series of experiments in his greenhouse and our laboratory, with a view of obtaining some more light on this important question.

THE "DOMINANT" FERTILIZING INGREDIENTS.

It will be interesting to note in how far the theory of "dominant ingredients" is borne out by the experiments. According to Ville, the "dominant" for corn is phosphoric acid. The effects of the superphosphate, potash, salt and nitrate of soda in the experiments may be stated as follows:

By reference to table IV. it will be seen that in ten experiments, Nos. 1, 2, 4, 8, 9, 10, 13, 14, 15 and 20, phosphoric acid was decidedly the regulating ingredient, the crop responding uniformly to it, and paying comparatively little attention to the others. In 6 experiments, Nos. 6, 11, 12, 17, 16, 18 and 19, the superphosphate, though not holding relatively so important a place, was more or less useful. In 4 experiments, Nos. 3, 5, 7 and 17, the superphosphate produced little or no effect, the average increase of the several plots of each experiment being less than 4 bushels per acre. The effects of the superphosphate, muriate of potash, and nitrate of soda, estimated in the above manner, may be stated as in the table below, which includes results of experiments of previous seasons:

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*Mr. Sanborn's results are extremely interesting. I regret that I have not full accounts of his experiments (which are soon to appear) for quotation here. Mr. Sanborn writes me, that for corn he finds sulphate of ammonia, the only form of nitrogen he has used in the experiments referred to "worse than useless," and the results "grow worse each year that the experiment is repeated," adding very aptly, "Don't ask me why."

Effects of the Fertilizing Materials upon Corn.	SUPERPHOSPHATE.				MURIATE OF POTASH.				NITRATE OF SODA.			
	Regulating ingredient.	More or less efficient.	Inefficient.	Total.	Regulating ingredient.	More or less efficient.	Inefficient.	Total.	Regulating ingredient.	More or less efficient.	Inefficient.	Total.
In 27 experiments of 1878.....	8	13	6	27	4	13	10	27	......	16	11	27
In 26 experiments of 1879.....	8	13	5	26	5	6	15	26	2	10	14	26
In 20 experiments of 1880.....	10	6	4	20	1	4	15	20	1	2	17	20
In 73 expe'm'ts of '78, '79 & '80	26	32	15	73	10	23	40	73	3	28	42	73

Phosphoric acid took the leading place often, potash occasionally, and nitrogen very rarely In bad seasons, and on some soils in good seasons, neither material had any effect. The most effective ingredient depended upon soil and season.

IS CORN IN ITS RELATION TO NITROGEN MORE CLOSELY ALLIED TO THE CEREALS OR THE LEGUMES?

In relation to this question I can do no better than repeat what was said in last year's report:

> "Our experiments imply that corn shares, to a considerable extent, the power of the legumes for gathering nitrogen from natural sources. One thing, however, detracts from their decisiveness. Most of the trials were on old grass land which contained large quantities of roots on which the corn doubtless fed. How well it could provide itself with nitrogen from nitrogen compounds in the soil and from air without the roots to feed upon is not settled.
>
> The experiments are numerous and decisive enough to warrant the inference that, as corn is commonly grown, nitrogenous fertilizers in any considerable quantity would be rarely profitable. They imply that corn has somhow or other the power to gather a great deal of nitrogen from soil or air, or both, they imply that in this respect it comes closer to the legumes than the cereals—that, in short, corn may be classed with the renovating crops.

THE FEEDING CAPACITIES OF POTATOES, TURNIPS AND OTHER CROPS.

Our experiments throw some light upon this question, as may be seen from tables I. and IV., and from a comparative summary of average results of all experiments in table VI.

Thus, in the experiments of Mr. Bartholomew, No. "C, 1879" and "1880," of table I., in which corn and potatoes were grown side by side, the corn has responded uniformly and largely to the superphosphate and paid little heed to the other materials, while the potatoes have responded to all. Other experiments on adjacent fields have brought like results. The same thing is observable in the averages of tables IV. and V. In brief, another season's experiments confirm the statement in last year's report, that—

> "Taking all in all, the potatoes responded to the superphosphate, potash salt. and nitrogenous fertilizers in almost every case where the weather permitted fair growth. None of the other crops except, perhaps, turnips have shown such uniformly beneficial results from all the materials.
>
> "The experiments indicate very decidedly that the potato plant differs from many others in respect to the effect of these fertilizing materials upon its growth, and imply that it has less capacity than corn for gathering an adequate supply of food from natural sources. It seems to demand a full and immediately available supply of nourishment for its successful growth.
>
> "Concerning the other crops, the data at hand are too meager to warrant any general conclusions. * * * In general, however, the experiments accord with the common notion that makes superphosphate almost a specific for turnips. But they imply that even when the superphosphate is supplied in abundance, the turnip is not usually able to gather enough of the other materials for a full yield unless they are close at hand in readily available forms."

EFFECTS OF NITROGEN IN DIFFERENT FORMS OF COMBINATION.

The figures in tables I. and V. have something to say upon this subject, but the testimony is not as striking in favor of any one form as might, perhaps, have been expected. Thus comparing the increase of corn with nitrate of soda, sulphate of ammonia, dried blood, "nitrogen mixture" (the three named in equal parts), and in Peruvian guano, on the plots which had 48 lbs. of nitrogen, "two-thirds ration" over the yard with mixed minerals, we have for the averages of 12 experiments the following:

Plot 8.	Nitrate of Soda, 300 lbs.	corn,	6.6	bushels.
" 13.	Sulphate of Ammonia, 225 lbs	"	6.8	"
" 14.	Dried Blood, 450 lbs.	"	7 5	"
" 11.	Nitrogen Mixture, 300 lbs.	"	7.1	"
" 15.	Peruvian Guano	"	7.0	"

NEED OF MORE EXPERIMENTING AND BETTER ELABORATION OF RESULTS.

I hope hereafter to be able to collate the results of the experiments of the three seasons in a more satisfactory manner than has yet been done, so as to make the drawing of just conclusions more practicable. By excluding those in which the crops were spoiled by drouth or other causes, and those whose results are decidedly irregular, I think that summaries like those in tables IV., V. and VI., will warrant conclusions of no little value.

I hope that the work in the future, of which all that has been previously done seem to me only a beginning, may bring us near the definite information that is so much needed.

EFFECTS OF DIFFERENT FERTILIZERS ON THE QUALITY OF THE CROPS.

The effects of the different fertilizers on the proportion of good to poor corn, and of corn to stalks are worth noting. A number of experimenters reported the amounts of "good" and "poor" corn. The percentages of "good" corn, i. e., the number of lbs. in 100 lbs. total corn as reported by the experimenters are:

NUMBER OF POUNDS OF GOOD CORN IN 100 POUNDS OF TOTAL CORN, WITH THE DIFFERENT FERTILIZERS.

Number of Experiment.	O.	A.	B.	C.	D.	E.	F.	G.	H.	
	Nothing.	Nitrogen.	Phosphoric Acid.	Potash.	Nitrogen and Phosphoric Acid.	Nitrogen and Potash.	Phosphoric Acid and Potash.	Nitrogen, Phosphoric Acid and Potash.	Plaster.	Farm Manures.
2	49	49[6]	68	53	69	60	68	...	...	...
3	69	78	86	83	60	83	63	83	85	...
5	61	71	55	77	84	80	86	90	56	89
8	62	67	84	75	85	53	76	63	58	...
9	69	74	74	63	78	...	79	79	54	...
10	80	72	93	70	87	62	91	92	89	...
12	...	80	83	80	87	83	93	92	90	...
13	88	87	91	88	92	82	94	94	...	...
14	87	89	87	77	80	80	86	86	90	90
17	95	93	97	98	99	99	99	98	99	...
19	97	97	97	97	98	97	98	99	97	...
20	95	95	94	92	97	95	97	97	97	...
Average of 12 Experiments in 1880	71	79	84	79	85	79	86	88	82	90
Average of 14 Experiments in 1879.........	56	58	72	62	73	64	61	69	63	58
Average of 8 Experiments in 1878.........	65	67	72	80	72	86	86	85	73	81
Average of 34 Experiments in 1878–80.....	63	68	76	72	77	74	76	79	72	68

The figures accord with the common experience that the largest yield gives also the largest proportion of good corn. Otherwise, no relation between the fertilizers and the proportions of good and poor corn are discoverable.

RATIO OF STALKS TO SHELLED CORN.

The weighings of corn and stalks were made at different stages of dryness. In some cases the stalks were cut above the ears, in others close to the ground The results are consequently discrepant. The averages are interesting as showing the relative effects of the fertilizing materials.

NUMBER OF POUNDS OF STALKS TO 100 POUNDS SHELLED CORN.

Number of Experiment.	O.	A.	B.	C.	D.	E.	F.	G.	H.	
	Nothing.	Nitrogen.	Phosphoric Acid.	Potash.	Nitrogen and Phosphoric Acid.	Nitrogen and Potash.	Phosphoric Acid and Potash.	Nitrogen, Phosphoric Acid and Potash.	Plaster.	Farm Manures.
2	464	423	115	127	240	151	288	.....	.....	.....
3	390	223	145	219	406	182	571	291	305	.....
4	168	199	92	175	158	159	159	170	158	126
5	118	98	126	123	108	121	154	131	150	85
8	93	86	65	104	91	108	98	130	107	.....
9	102	198	96	101	97	.....	92	102	99	.....
13	129	111	111	147	108	168	124	122	.....	.....
14	81	122	94	174	94	163	175	174	89	130
16	196	99	106	103	95	83	91	94	101	.....
18	118	108	112	116	108	111	109	129	106	.....
Average of 10 Experiments in 1880........	186	159	106	139	151	138	186	149	142	114
Average of 12 Experiments in 1879.........	149	156	120	168	105	162	141	124	219	115
Average of 10 Experiments in 1878.........	173	143	149	145	129	176	128	131	139	133
Average of 32 Experiments in 1878–81.....	168	153	125	151	127	158	150	133	172	122

The proportion of stalks to shelled corn is smaller in the larger crops, and conversely the poorer crops have more stalks for the same amount of corn than the better crops. Contrary to what is commonly supposed, the nitrogenous fertilizing materials do not seem to have increased the amount of stalks as compared with corn.

REPETITIONS OF EXPERIMENTS IN SUCCESSIVE YEARS.

A summary of results of work of this sort is given in Appendix B, Table VII. This is a matter upon which I have laid great stress. But few farmers, however, are inclined to take the trouble needed to repeat the experiments. At the same time I find that many do take the results and practically repeat the work by using the materials they have found, most efficient, on a larger scale. Indeed this seems to be what a great many of the experimenters do, and to their decided advantage.

DISCUSSION OF INDIVIDUAL EXPERIMENTS.

It is a matter of much regret that such faithful and useful work as has been done by so many of the experimenters must, in lack of space, be passed over with brief general remarks. I cannot, however, forbear calling especial attention to a few of the individual experiments.

MR. BARTHOLOMEW'S EXPERIMENTS,

Which have now continued for four years, covered nearly one hundred plots, been repeated on the same plots, with the same fertilizers and the same crop, year after year, and on other parts of the same field, and on contiguous fields and with other crops, are decidedly the most instructive and valuable ever made, to my knowledge, by a private individual in this country. Some, with corn and potatoes, have been reported in Table III. I wish here to call especial attention to another experiment with corn, commenced in 1877, and continued until the present. The plots were 10 square rods each. The fertilizing materials have been:

No. of Plot.	FERTILIZERS.				FURNISHING VALUABLE INGREDIENTS.			
	KIND.	Lbs. per Acre.	At price per ton.	Cost per Acre.	KIND.	Assumed per cent.	Lbs. per Acre.	Cost per Acre.
1	Dried Blood	320	$40.00	$6.40	Nitrogen	10	32	$6.40
2	Dissolved Bone-black	320	35.00	5.60	Phosphoric Acid	16	51	5.60
3	Muriate of Potash	320	45.00	7.20	Potash	50	160	7.20
4	Dried Blood	160	37.50	6.00	Nitrogen	5	16	3.20
	Dissolved Bone-black	160			Phosphoric Acid	8	25½	2.85
5	Dried Blood	106⅔	40.00	6.40	Nitrogen	3.3	10⅔	2.13
	Dissolved Bone black	106⅔			Phosphoric Acid	5.3	17	1.87
	Muriate of Potash	106⅔			Potash	16.7	53⅓	2.40
6	Plaster	320	10.00	1.60				

Wood ashes, dry and leached, and farm manures, were likewise employed, as indicated below. A number of brands of manufactured fertilizers were also tried, with results according with those from the regular experimental fertilizers.

The experimental field is part of that on which Mr. Bartholomew's other experiments have been made. The soil Mr. Bartholomew describes as "hill land, dark loam, moist, with clayey subsoil. The land of this experiment was, in 1874, an old meadow, yielding about one ton of hay per acre. In 1875 it was plowed, dressed with twelve cart-loads per acre of yard manure, planted to corn, and gave 35 bushels per acre. In 1876 it was sowed to oats, with no additional manure; yield 40 bushels." In 1877 experiments were began with corn. The land has thus been out of grass for six years—one with oats and four with corn. The seasons of 1877 and 1878 were on the whole favorable. In 1879 the spring was late, the crop was injured by storms, and frost killed the corn September 25th, before the corn was matured. The season of 1880 was unusually favorable. The yields per acre have been as follows:

Plot.	Fertilizer.		Yield of Shelled Corn per Acre in Bushels.			
	Kind.	Amount per Acre.	1877.	1878.	1879.	1880.
1	Dried Blood	320 lbs	13.7	10.0	......*	21.2
2	Superphosphate	320 lbs	41.6	39.8	21.7	39.3
3	Muriate of Potash	320 lbs	15.5	11.0	......*	17.5
4	Mixture I + II	160 lbs. of each	38.0	35.4	22.4	37.0
5	Mixture I + II + III	106⅔ lbs. of each	33.5	30.5	20.7	33.3
6	Plaster	320 lbs	19.4	11.0	......*	15.0
0	No Manure		6.2	3.0	......*	13.5
7	Wood Ashes, dry	32 bushels	34.9	30.4	......*	38.8†
8	Wood Ashes, leached	48 bushels	37.7	36.6	24.6†	37.7‡
9	Hog Manure	16 cart-loads	41.1	46.6	......	37.7
10	Hen Manure	20 bushels	54.9	56.7	......	......

When Mr. Bartholomew's experiments were first reported (1877), they were severely criticised. It was alleged that the very striking results obtained with phosphoric acid, and failure of nitrogen and potash to increase the yield, were only transitory; that they did not indicate what would be the results in succeeding seasons, or even on other parts of the same field the same season. Indeed, supporters of certain theories of fertilization with which these and other experiments did not harmonize, went so far as to represent them as utterly fallacious and misleading, and on that account even hurtful to the experimenter and to science.

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* Entire failure.

† Dissolved Bone-black 480 pounds per acre, instead of Ashes.

‡ Ammoniated Superphosphate 480 pounds per acre, in place of Ashes.

These criticisms were directed especially to the experiments as tests of the needs of the soil and indications of the proper fertilizers to be used. In Mr. Bartholomew's experiment above, while the yields have naturally varied with the season, the proportions on the different plots from year to year have remained strikingly constant. As in the first season, so in others to the fourth, the crop has risen and fallen with the phosphoric acid, and paid very little attention to the other ingredients. Indeed, the following statement from the reports of the experiments in 1877 are, with unimportant exceptions, equally appropriate to those of 1880:

> "(1). In the four cases, Nos. 1, 3, 6 and 0, where phosphoric acid was not supplied, the crop failed. (2). In every case where phosphoric acid was supplied, either alone (*i. e.*, as superphosphate with the lime and sulphuric acid incident thereto), or with other materials in Nos. 2, 4, 5, 8, 9 and 10, the crop was good. (3). The amounts of phosphoric acid per acre in Nos. 2, 4 and 5 were 51, 25½ and 17 lbs., respectively; the yields, 41.6, 38 and 33.5 bushels, showing a corresponding decrease. Comparisons of the amounts of phosphoric acid applied and corn produced in the other cases, of which limited space excludes details, show a similar and singularly uniform ratio between the two. This parallelism between phosphoric acid and yield runs through the plots with ashes, which contain less of the phosphoric acid, and brought less corn; and those with farm manures, which contain more, and brought more. (4). The produce with potash salt, and with dried blood alone, was less than on the one plot with no manure. (5). While the crop responded uniformly to the phosphoric acid, it got little apparent benefit from the other ingredients of either the chemical fertilizers, the ashes, or the farm manure."

And in all the scores of trials which Mr. Bartholomew has made in amplification of these experiments, the same results have been obtained; corn has responded largely to phosphoric acid, less to nitrogen, and scarcely at all to potash. I cannot forbear repeating that Mr. Bartholomew has uniformly got the best results by using a moderate dressing of farm manures, supplemented by superphosphates. Indeed, in his case, as in many others, the proper use of commercial fertilizers is to supplement the farm manures. But it should be remembered, that while nitrogen and the potash have produced so little effect on corn, on potatoes they have been as uniformly useful and profitable.

PRACTICAL APPLICATION.

It would hardly be permissible to omit reference to the information the experiments give as to what commercial fertilizers farmers may advantageously use. Indeed, it was for this purpose the experiments were at first proposed. The principle, as expressed in previous reports, is briefly this:

"The chief office of fertilizers is to supply the plant-food that our crops need and soils fail to furnish. It is not good economy to pay high prices for materials which the soil may be made to yield in abundance, or which may be supplied by the carefully-husbanded manures of the farm, but it is good economy to supply the lacking ones in the cheapest way. The most important ingredients of our common commercial fertilizers are *Phosphoric Acid, Nitrogen* and *Potash*, because of both their scarcity in the soil and their high cost. It is in furnishing these that Guano, Phosphates, Bone Manures, Potash Salts, and most other commercial fertilizers are chiefly useful. Accordingly, the three ingredients named were to be supplied (see tables II. and III.) each by itself, two by two, and all three together."

SOILS ESPECIALLY BENEFITED BY PHOSPHORIC ACID.

In Mr. Bartholomew's corn experiment, No. 10, every plot in which phosphoric acid was applied brought a good crop, and every one without it failed. The nitrogen and potash both increased the yield, but, reckoning a bushel of corn with its stalks at 80 cents, neither increased it enough to pay the cost.

In Mr. Clendon's experiment, No. 1,* and Mr. Wolcott's, No. 8, the results with phosphoric acid are equally striking. There are, however, many

SOILS WHICH RESPOND WELL TO POTASH-SALTS.

This is the case with Mr. Hick's experiment with corn, No. 17, and in nearly all the trials with potatoes. I do not find so many striking instances of great success with potash salts, and failure without them in the experiments of this as previous season.

GENERAL CONCLUSIONS.

The following conclusions summarize the main results of the general and special experiments as applied to the practical use of fertilizers. That they are similar to the conclusions in previous reports is due to the simple fact that the experiments of the different seasons tell essentially the same story:

1. As the experiments were mostly on worn out soils, the average produce with a given crop does not represent what might be expected under fair conditions.

2. The largest yield came with the "complete" Chemical Fertilizer (*G*), which supplies 150 lbs. of nitrate of soda, 300 lbs. of superphosphate,

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* Mr. Clendon's experiment is of especial interest as illustrating that phosphoric acid is sometimes more profitable in its insoluble and cheaper forms, than in superphosphate. I regret that limited space forbids giving to this subject the notice it deserves, and hope to discuss it elsewhere.

and 150 to 200 lbs. of muriate of potash, at a cost of a little over $15 per acre.

No. G has brought by far the best results. It was generally the most profitable of all with potatoes, and often so with corn and other crops. This mixture has not only brought larger yields than the farm manures, but has also proved more certain, in favorable seasons and in cold, wet and drouth. I would not propose just these proportions for general use, however. Less potash and more nitrogen would generally be better for some crops, as grain, potatoes and garden vegetables. The object here was to test soils, and not to get the largest possible yields.

3. The next largest average yield is with the farm manures. Then follows the mixture of superphosphate and muriate of potash (*F*). This latter averaged most profitable of all for corn.

4. Next came the mixture of nitrate of soda and superphosphate (*E*). That this, which contained superphosphate and nitrate of soda, should bring a lower average yield than the mixture of superphosphate and potash salt with every crop on which the number of trials is large enough to warrant any general conclusions, is certainly a significant fact. Our ordinary guanos, ammoniated superphosphates, and fish manures, contain (like *E*) nitrogen and phosphoric acid with a little or no potash. Nitrogen is the costliest, and potash one of the cheaper of the valuable ingredients of ordinary fertilizers. Another season's experience thus emphasizes last year's statement, that manufacturers and users of ammoniated superphosphate would do well to consider the propriety of either adding potash salts or substituting them for nitrogenous materials in their fertilizers. Indeed, I see many are doing so.

5. These experiments explain very clearly one reason why guano, fish, bone, superphosphates, etc., so often fail. In many cases the trouble is lack of potash.

THE BEST FERTILIZERS FOR DIFFERENT CROPS.

6. To prescribe formulas to fit all cases is utterly impossible. The needs and the effects of the different materials, in any case, are decided by numerous factors, of which the most important are soil, season, tillage, feeding capacity of the crop, and indirect action of the fertilizers. The character of the season cannot be foretold. The wants of the soil can be learned practically by experiment alone. Of the feeding capacities of different crops, much is already known, and experiments like these are telling us much more. As to the indirect action of fertilizers in improving the texture of the soil, and setting plantf-ood free, science has taught

us a great deal, but more research will be needed before we shall be able to lay down general rules with certainty.

FORMULAS FOR FERTILIZERS.

7. I am continually receiving requests for formulas for fertilizers for different crops. Several such letters, just received, are before me. I find myself answering, generally, somewhat as follows: "The first and most important thing to be found out is what your soil lacks. That I cannot tell you. It may be phosphoric acid, or potash; perhaps plaster or lime may serve your purpose, and possibly the trouble may be one that fertilizers will not help, at least not until the soil is drained, irrigated, or better tilled. The best advice I can give is to experiment on a small scale, find what materials are most effective and profitable, and then use them. But if you cannot or will not do this, you can either use guano, phosphate, or bone, or potash salt, and take the risk of its fitting your case; or use a complete fertilizer which contains all the materials that soils generally lack. In the latter case you risk paying for some ingredients that will give no adequate return." But at the same time, it should be said that the general outcome of the experiments is much more favorable for "complete" fertilizers than I anticipated.

As to special formulas for different crops, I make no prescriptions. The intelligent dealers who do so know very well that it is for their interest to make their mixtures such as will on the average bring the largest practicable profit to the consumer, and are very careful to get the best results of research and experience and use them in preparing their materials. Some I know to be among our most enthusiastic and successful students of these subjects. I can suggest no better formulas than many of those in actual use by trustworthy dealers.

8. Leaving variations in soil and season out of account, and considering the feeding capacity of the crops, as shown by these and other experiments, and by general experience, it is safe to say that:

(1) For *corn*, an excellent fertilizer to bring large crops is a mixture of Peruvian guano, or fish guano, and muriate of potash. To this it might be profitable to add some fine ground bone or superphosphate. In the majority of cases, though not always, a more profitable mixture would probably be one of muriate of potash, with either superphosphate or fine ground bone, or both. At the same time there are cases in which nitrogen helps the crop enough to make it profitable, and in which nitrate of soda, sulphate of ammonia, dried blood, guano, or fish, would be in place.

(2) For *potatoes*. which respond more generally than corn to both nitrogen and potash, such of the above mixtures as contain considerable nitrogen would generally be in order.

AS TO COMMERCIAL FERTILIZERS IN GENERAL.

9. For general farming, at a distance from the large markets, the chief use of commercial fertilizers should be to supplement the manure of the farm. The right way is to make the most and best manure that is practicable upon the farm, and piece out with such commercial fertilizers as experiments and experience prove profitable. At the same time there are many cases, especially near cities, where everything depends upon getting the largest and best yield, and where more exclusive use of chemical fertilizers is advisable.

10. Either the combined testimony of these experiments, similar ones elsewhere, and the best experience are totally false, or chemical fertilizers bring larger, better, and even surer crops than farm manures.

IN CONCLUSION.

Taken all together, the experiments emphasize more and more strongly, year after year, the conclusions expressed in previous reports that:

11. Soils vary widely in their capacities for supplying crops with food, and consequently in their demand for fertilizers.

12. Some soils will give good returns for manuring; others, without previous amendment, by drainage, irrigation, tillage, or use of lime, marl, etc., will not.

13. Farmers cannot afford to use commercial fertilizers at random, and it is time they understood the reason why.

14. The right materials in the right places bring large profits. Artificial fertilizers, rightly used, must prove among the most potent means for the restoration of our agriculture.

15. The only way to find what a soil wants is to study it by careful observation and experiments.

NOTE.—Experiments similar to the above are greatly needed in Ohio, to determine the relative value of nitrogen (ammonia), phosphoric acid and potash *in the production of wheat.* W. I. C.

REVERTED PHOSPHATE.

[The following also will be of value, by Prof. G. C. Caldwell, of Cornell University, in N. Y. Tribune.]

The so-called reverted phosphate, or that portion of the phosphate of lime which, though not soluble in water is soluble in a solution of citrate of ammonia of a certain strength, and is more soluble in the soil water than powdered bone or powdered rock phosphate, is coming to form no inconsiderable part of our superphosphates in some cases. The question of its value as compared with the phosphate soluble in water is one of interest to dealers and farmers, here as well as in Europe. In a former number of The Tribune, I showed that in France and Belgium soluble and reverted acid are held to be equal in value, but not in England and Germany. Many experiments were performed in Germany in 1880, with a view to furnish some contribution to the settlement of this difference of opinion. Wolff experimented on a heavy and on a light soil with equal quantities of "available" acid, but this "available" acid was in one case (*a*) nearly all soluble in water, while in the other case (*b*) half was soluble and the other half was reverted; on the heavy soil for 100 lbs. of grain on the unmanured plot *a* gave 128 lbs. and *b* 114 lbs.; on the loamy sand *a* gave, for 100 lbs. with no manure, 111 lbs. and *b* 108 lbs. Ten farmers experimented under the direction of König, of one of the Experiment Stations. The results are summed up as not being sufficiently decisive for the establishment of any conclusion further than that on heavy soils soluble phosphate generally gave the better return, and on light or on sour humus soils reverted phosphate was as good or better. Several farmers experimented under the direction of Holdefleiss of another Experiment Station, with the general result that on vigorous soils which had been for some time under cultivation the reverted phosphate equaled or even surpassed the soluble phosphate; but on less vigorous soils, especially if but newly brought under cultivation, the soluble phosphate gave better results. Other experiments gave about equal results for the two phosphates, while in the case of still other series of trials, some of them quite extensive, discordant results were obtained from which no conclusions could be drawn. On the whole we do not seem to be much nearer to a solution of the question than we were nearly eighteen months ago when I mentioned in The Tribune the action of Directors of German Experiment Stations, who, prompted by the vigorous indorsement received by the reverted acid elsewhere resolved to institute experiments of their own. Nothing decisive in these new results goes to controvert the opinion then freely expressed, that on sandy soils the use of reverted phosphate is likely to be more remunerative than of soluble phosphate, while on soils in general the use of soluble phosphate is to be preferred. Those in this country who are fortunate enough to be able to acquaint themselves with the composition of the fertilizers they use should make careful note of the results obtained where much reverted and little soluble phosphate is applied, as compared with the profits on a phosphate rich in soluble acid alone. It is evident that a large number of careful observations of this kind will be necessary for the establishment of any conclusion in regard to the matter. In reporting results, the kind of soil as well as of crop, the character of the season, and the relation between the cost of the fertilizer and the value of the crop should be given.

OUR SCHOOLS OF AGRICULTURE.

By Prof. W. J. Beal, Lansing, Michigan.

[Presented at the Farmers' Convention, held under the direction of the Connecticut Board of Agriculture at New Britain, Conn., December 15th, 16th and 17th, 1880; published in the Connecticut Agricultural Report for 1880, and here re-published by permission.]

According to the old view of agriculture in our country, a farmer needs no education, or but very little. It was only thought necessary that he have a limited amount of practice on the farm, especially while young. Almost anybody could be a farmer. The clumsy implements used, the imperfect modes of cultivation; the superstition pertaining to many operations in planting and harvesting; feeding, rearing, and killing animals; the crude thories of animal and vegetable physiology; the composition and needs of the soil; the action of water, frost, heat, and light, all indicated that farmers, as a general rule, did not believe in acquiring much education.

In some parts of other States we still hear of men who cut timber in the moon, plant in the moon, cultivate in the moon, harvest in the moon, and kill hogs in the moon. They know that wheat will turn to chess, sorrel to white clover, horsehairs to worms; that timber grows spontaneously without any sprouts or seeds, and think the good old ways were the best. "They don't see no use nohow in book-larning for farmers."

Of course there are none of the old fossils here at this meeting, for they never go to such places. They know enough already. They have found out that "farming don't pay." We should, however, respect the memory of our ancestors, for most of them did the best they knew. They labored under great disadvantages in a new country, with little money, poor facilities, and that greatest of all obstacles, ignorance, with little or no inclination to improve.

Not every one who tilled the soil was satisfied with what he already knew. A few longed for something better, believed there were better modes of conducting farm operations, and set themselves to finding them out.

Scholarship has long been recognized as necessary for teachers, lawyers, doctors, and the clergy.

It is true that we now find many ignorant men who make money and a good living on a farm, but they owe much of this ability to educated men who have improved implements of all kinds, modes of cultivation and management of crops, and improved breeding of domestic animals. These men take what they have earned no right to—they look over the fence and receive information without money and without price. No class of men are under deeper obligations than these to men of culture and progress, and yet, they are often the very men who complain most of taxes to support the schools. I need not say that, in the true sense of the word, a man's success on the farm cannot be measured by the amount of money squeezed out of everything.

It probably may be difficult to prove, but I presume we could trace the early progress in agriculture to the efforts of some learned men of other occupations who took up farming for recreation, or as a business. Certain it is, that in modern times, some of our foremost successful farmers have abandoned other business for farming. Although the so-called fancy farmers often fail to make their payments, and are subject to the derision of "practical" farmers, yet they do much to advance agriculture. They make experiments for the benefit of those who will not make them for themselves.

Where agriculture thrives, there we always find a prosperous people. It has always been so, and doubtless it ever will be. Through thought and skill the last 100 years have witnessed great progress in agriculture. These are familiar to you and need not be enumerated at this time.

This awakening of thought in reference to our noble occupation leads to the establishment of schools of agriculture. The first were founded in Europe, and are not yet old, while the first in our own country are still young.

The State of New York established the first, but it was soon abandoned. Michigan followed next. The State Legislature voted in 1850, 30 years ago, to establish an Agricultural School, and five years later, made provision for its location and support. Two years later, in 1857, 23 years ago last May, the college was opened to students. It is the oldest college of its kind in this country. For some years at first, there was a strong effort to unite this college to the State University. An agricultural school was a new thing without any model. Almost every man entertained a different view of what it should undertake to accomplish. There were no trained professors of agriculture, agricultural chemistry or horticulture. There were no good text-books in these departments.

The customs of the farmers in Europe were so different from those of the farmers of the United States, that little could be learned in Europe which was just adapted to our practical people. For several of the above reasons, some of the earliest of the professors in agricultural schools failed to hold their positions. Changes of professors in some departments of our agricultural schools have been alarmingly frequent.

I give a list of Agricultural and Mechanical Colleges of the United States. Those which have no farm attached are marked with an asterisk. The list was taken from the Rural New Yorker:

Name of Institution.	P. O. Address of President.	State.
Agricultural and Mech. College of Alabama	Auburn	Alabama.
Arkansas Industrial University	Fayetteville	Arkansas.
Agr. Mining, and Mech. Arts Col., Univ. of Cal	Berkeley	California.
*Sheffield Scientific School, Yale College	New Haven	Connecticut.
Agricultural Department of Delaware College	Newark	Delaware.
Florida State Agricultural College	Tallahassee	Florida.
*Georgia State College of Agr. and Mech. Arts	Athens	Georgia.
North Georgia Agricultural College	Dahlonega	Georgia.
Illinois Industrial University	Urbana	Illinois.
Purdue University Agricultural College	LaFayette	Indiana.
Iowa State Agricultural College	Ames	Iowa.
Kansas State Agricultural College	Manhattan	Kansas.
Agricultural and Mechanical College, Ky. Univ	Lexington	Kentucky.
Agricultural and Mechanical College of Louisiana	New Orleans	Louisiana.
Maine State College of Agr. and Mech. Arts	Orono	Maine.
Maryland Agricultural College	Agr. Col	Maryland.
*Massachusetts Institute of Technology	Boston	Massachusetts.
Massachusetts Agricultural College	Amherst	Massachusetts.
Bussey Institute of Harvard University	Jamaica Plain	Massachusetts.
Michigan State Agricultural College	Lansing	Michigan.
College of Agr. and Mech. Arts, Univ. of Minn	Minneapolis	Minnesota.
Mississippi Agricultural and Mechanical College	Starkville	Mississippi.
College of Agr. and Mech. Arts, Univ. of Miss	Oxford	Mississippi.
Agricultural and Mech. Col., Univ. of Missouri	Columbia	Missouri.
Mo. School of Mines and Metallurgy, Univ. of Mo	Rolla	Missouri.
Agricultural College, University of Nebraska	Lincoln	Nebraska.
College of Agriculture, University of Nevada	Elko	Nevada.
N. H. Col. of Agr. and Mech. Arts, Dartmouth Col	Hanover	New Hampshire.
Scientific School of Rutgers College	N. Brunswick	New Jersey.
Col. of Agr. Mech. Arts, etc., Cornell Univ	Ithaca	New York.
Agr. and Mech. Col., Univ. of North Carolina	Chapel Hill	North Carolina.
Ohio Agricultural and Mechanical College	Columbus	Ohio.
State Agricultural College, Corvallis, Oregon	Corvallis	Oregon.
Pennsylvania State College of Agriculture	State College	Pennsylvania.
*Agr. and Scientific Department Brown Univ	Providence	Rhode Island.
S. C. Agr. Col. and Mech. Institute, Claflin Univ	Orangeburgh	South Carolina.
Tenn. Agricultural College, Univ. of E. Tenn	Knoxville	Tennessee.
Agricultural and Mechanical College of Texas	College Station	Texas.
*Univ. of Vermont and State Agricultural College	Burlington	Vermont.
Virginia Agricultural and Mechanical College	Blacksburgh	Virginia.
Hampton Normal and Agricultural Institute	Hampton	Virginia.
Agricultural Department, Univ. of W. Va	Morgantown	West Virginia.
College of Arts, etc., University of Wisconsin	Madison	Wisconsin.

These are located in thirty-seven different States. Each college differs in some respects from every other. Some of them possess and till large fertile farms, performing much of the work with the aid of students; some till only a small farm with students; some possess no farms; some till the farm entirely by hired labor, without the aid of students, and try to make money in the operation. "To run a farm for profit" is one great point made by some of the colleges. There are some colleges connected as branches to a university, others are distinct; some have only an agricultural department; some have military training; some a mechanical department.

There are various plans for students to work. In some colleges students all work at one time of day; in others, at different hours. In some colleges students all work every day throughout the course; in others, during only a part of the course. Some require very little work of students; others as much as three hours daily. In some of the colleges, students are taught telegraphing, engraving, printing, designing; and the girls are taught the art of cooking, sewing and household economy.

In some places students are paid for all their work; in others, a part or all of the work is for practice and instruction, without remuneration.

We have agricultural colleges with the terms extending through the coolest part of the year, and in the others the term extends through the warmest part of the year, with a long winter vacation, in which students can engage in teaching school.

We have colleges in warm States and in cold States; in States where agriculture is the prevailing industry, and in States where manufacturing is the chief occupation.

I think our country is particularly fortunate in having such a variety of industrial colleges located in the several States. Most of them are proceeding without a model; all are striving to pursue the best way, so far as their means will permit. In time, errors will be eliminated, and the best courses will be learned. In a few years we shall somewhere have a model agricultural college, and probably more than one; while others will dwindle, go down, or continue to pursue a course not very different from other colleges with literary and scientific courses.

In Mississippi, Texas, and perhaps in other States, they have abandoned the practice of uniting an agricultural college with a university. In attempting to successfully unite the two they failed, and have started anew in separate colleges. This was the experience of our friends in Canada. To their noble university, which was well-equipped, they attempted to attach an agricultural college. The officers in charge, after the trial, reported that "The one word, *failure*, gives the history of all such arrangements. Agriculture is overshadowed by other studies; farming is elbowed out by other professions. Agricultural students feel themselves of an inferior grade, the class a dwindling and unsuccessful affair. Stubborn facts refuse to sustain the theory that this department will work well in connection with a general literary course."

For several years they have, therefore, had an agricultural college, separate from the university. During the past year, report says that they were compelled to turn away two hundred students for want of room. Students all labor, often as much as five hours daily.

What shall constitute success in an agricultural college, is a question quite difficult to decide. Each may be successful in some respects and not in others. We shall differ in opinion as to what an agricultural college ought to attempt. We judge that a college is more or less successful according to the extent and quality of the training given to its students. A successful college is expected to be popular with the class of people who support it; to draw large numbers of students, and to retain a large proportion of these till they complete the course.

Further than this, most people consider what becomes of the students after pursuing a partial or a full course in an agricultural college. No matter what course of study they pursue, their life-work will often be modified by the condition of the country in which they live. If agriculture is depressed from any cause, and the outlook for farmers is discouraging, young men will often seek other business, no matter what has been their training. If agriculture is "booming" many bright young men will seek the farm as a life work. After all, the early training of a young person will have very much to do with his choice of business In Michigan there are some excellent reasons why all of our young men, after a course in the agricultural college, do not engage in farming. Some students attend the college because they think the opportunities are excellent for obtaining a good education. Some of them have no idea of ever becoming farmers. From the start, they expect to become lawyers or doctors, or engage in some other business. Some attend the college for its excellent advantages in chemistry, or entomology, or botany. Students are induced to attend for various reasons of more or less importance. They flock to college after each other, as sheep over a fence.

After studying for a while, a young person may find that his taste leads him to follow some other pursuit than farming. We have no right to reject a person in Michigan Agricultural College for not taking an obligation promising that he will become a farmer. He is allowed to remain and pursue his course if he keeps up with his class and behaves himself.

I have two students in mind who will not likely ever become farmers. One of them went to Philadelphia and attended the Centennial Exposition. He was there a week. On the first day, in the morning, he went straight to the art gallery and remained there all day. The remaining days found him in the art gallery. His skill with the pencil and his taste are all in one direction. He will be an artist or an architect, and probably a good one, and that is the place for him. Our course in agriculture and horticulture, botany and chemistry, has been a benefit to him.

Another student is an expert at drawing faces in caricature. He cannot keep his mind from these things. He likes drawing and succeeds in it, and all the attractions of the plow and the hoe cannot tempt him to give up the pencil and the brush.

One graduate told me that he was brought up on a farm at home, but he never liked it. After graduating he thought more of farming than he ever did before, but he was going to select law. Others entered with the intention of becoming teachers, lawyers, or engaging in something besides farming, but the course at the college changed their minds in favor of farming. No matter for what reasons students enter Michigan Agricultural College, most of them, after leaving, intend sooner or later to go on the farm.

Many of our students are poor, and have no means with which to buy farms after completing a course of study.

They will become clerks, book agents—anything that is honorable—by which they can earn the most money for the time; but, when money is earned, they intend to buy a piece of land and make a farm of it. Going to an agricultural college will not necessarily make a young man choose farming as a business, nor will steady work on a good farm. If we wish a son to become a farmer, and he has no particular bent in another direction, we should keep the farm in his sight all the time. We must contrive by all honorable means to show him that it is not all drudgery, and that there is no business or profession in which a strong, well-trained mind can be used to better advantage. I cannot see why every farmer should wish his son to become a farmer, but it is generally the rule.

In Michigan, the students have from the start labored three hours a day. They have kept up a familiarity with various operations on the farm, orchard, and garden. In, perhaps, a dozen cases students have boarded away from the college, and have not been required to work.

These have all, so far, chosen other occupations than farming. Perhaps they might have done the same had they been required to work three hours a day. Exemption from work—out-door farm work—has always tended to wean students from the farm, so far as my observation has gone.

A four-years' course in college is not too much time for a young man to spend in acquiring a general education, and in learning something about agriculture. A farmer needs a symmetrical education as well as anybody. He should know how to read and speak the English language correctly. He needs to know something of history, political economy, mathematics, book-keeping, botany, zoölogy, chemistry, mechanics, meteorology, physiology, drawing, logic, landscape-gardening, civil engineering, a little of architecture, and of course he should know something of veterinary science, agriculture, and horticulture.

Unless the student acquire a general education in school or college, he is not likely to learn these branches; and is, therefore, liable to become unsymmetrical and narrow.

In a college course for farmers, I place great stress on the thorough training to investigate any topic. They should make some experiments, and study the laws of correct experimentation. They will thus acquire the habit of obtaining information for themselves.

I have named the branches which seem of most value for students to pursue in an agricultural college. Very much depends on the manner in which these branches are taught. The right men ought to be employed, whose specialties are just what is of the most importance for the students to learn. In agriculture and kindred topics, the teacher should possess a practical turn of mind, and good business habits. There are many things which cannot be well taught in the class-room. I have just completed a course of daily lectures on horticulture to a class of juniors. Every attempt possible has been made to impress certain facts and methods clearly on the minds of the class. Most of them have been brought up on farms. After my efforts, I should be ashamed to read you some of the mistakes made in their examination papers. Some of these were made on account of erroneous notes taken during the lectures, some through a misunderstanding of some of my statements. I have found that there is not much use in attempting to teach some things in the class-room, and I have given up that way.

A few years ago, after spending the best part of two lectures on the structure of the grape-vine and a few modes of trimming, I questioned my students on the subject. They seemed to understand it all perfectly. The next day, eight or ten of them, each with knife in hand, was asked to prune a grape-vine. They all hesitated and wanted to see me trim one first. I did so, and then directed each of them, all being allowed to suggest mistakes made by the others. Each trimmed three or four vines. Some of them said, "This is worth more than all your lectures on the subject. Now we understand it."

I might relate a similar experience in reference to some of my early teaching of animal physiology, botany, and zoölogy.

At present, and for the past two or three years, our course in horticulture has been divided into two parts, one consisting of a course of lectures given in the class-room, and the other a course of training in garden or orchard. Students are all taken, about eight in a company, with the proper tools in hand, at the proper season of the year, and have actual practice in budding, grafting, layering, making cuttings, trimming drives, cutting and laying sods, trimming apple-trees, thinning apples, trimming grape-vines, raspberry-bushes, picking, assorting and packing apples, marking out orchards, taking up and setting out large and small trees and plants, care of hot-beds, management of celery, use of garden implements, crossing flowers, fighting several kinds of insects, and many other operations.

This lesson comes, through one year, as often as twice a month for each junior, and continues for one or more hours, sometimes for three hours. Each is asked to make any suggestions of improved methods, or criticise any point in the work. This is made a part of the course, and is required of each student as much as his lessons in geometry. No pay is given for such work. Sometimes a student works three hours a day for two days or more, as in trimming apple-trees. The trees are all labeled and numbered. Each student takes his trees, and, when done, the members of the division inspect the work, with the professor, for criticism.

This is valuable work and we cannot have too much of it. We are likely to get too little of it, because it takes time and foremen, both of which are deficient. Unless the account goes upon the college record and finds a regular place, it is likely to be neglected or crowded out.

A whole course of such training, and such *only*, would not be enough for an Agricultural College. It would be all art and no science; all practice and no reasons. The students need regular lectures and recitations and practice in writing essays. They must have *laboratory* practice in chemistry, zoölogy, and botany. For example, the old way of teaching and learning botany would not answer. Historical and systematic botany are all well enough, but they should not take the place of drawings and notes, carefully made after prolonged study, with microscopes and other apparatus.

Book learning and the study of drawings to illustrate the text in works on botany, zoölogy, and mechanics can no longer be palmed off as valuable training.

The Old Botany, or the old way of teaching it in many places, was somewhat as follows: The teacher is supposed to be a dried-up old fellow—a regular fossil. He wears odd-looking clothes. He usually teaches his classes from the text-book, and prefers to pursue the study in winter, so pupils can learn the names and peculiarities of plants before the plants themselves appear in spring. There are many hard, unfamiliar names in this study.

With no specimens to illustrate the lessons, and a dry teacher, most of the pupils have acquired a thorough disgust of the study long before warm weather furnishes specimens for illustration. In time, spring flowers appear, and the pupils are supplied with them. Each may have a cheap microscope, which he is compelled to hold in one hand. The teacher and class hastily and superficially run over the various parts of the plant. They all turn to an artificial key and wade through this part of the book till the teacher says, "We have found the order to which the plant in hand belongs." They turn to the page for the order and proceed till they come to the name, which may be *Claytonia Virginica*, *Hepatica triloba*, or *Ranunculus fascicularis*. And what next? "We have found the name of the plant." The pupils have merely had an introduction to the stranger in the most formal manner. The teacher can suggest nothing further for the pupil, except that it would be a good plan for each member of the class to collect specimens, press, dry them, place in a portfolio, and give each a label, on which should be written the Latin and common names, the habitat and time of flowering. The pupil has been taught that it is all of botany to learn the names of the parts of a plant, or the parts which are not too small to be easily seen with a cheap hand-glass. Mysteries are still unsolved, and the plant is still a stranger. We ask it no questions: we receive no replies. We have only glanced at the exterior. Such is the mode of study which, I say, "can no longer be palmed off as valuable training."

THE NEW BOTANY.

A much better way of beginning botany than the above, at least one which I have found better for my classes, may be indicated somewhat as follows: Before the first lesson each pupil is given some specimen to study. If flowers or growing specimens cannot be had, give each a branch of a tree or shrub, which branch may be two feet long. The examination of these is made during the usual time for preparing lessons, and not in the class room. Without having the specimens in sight, they are to tell what they can about them for the next recitation. They can use books if they prefer, though it is better that they do not. No books can be found that will give much assistance on such a lesson. The time arrives, and the hour is mostly spent in hearing different members report their discoveries, until all have had a chance to add anything not noticed by any other member. The teacher suggests a few other points for study. The pupils are not told about things which they can see for themselves. An effort is made to keep them working after something which they have not discovered. If two members disagree on a point, on the next day, after further study, they are requested to bring in all the proofs they can to sustain their separate conclusions.

It is often astonishing to notice how much is discovered by so many good eyes. For the next lesson the students review the first lesson, report on a branch of another kind of plant which they have studied, and notice the points of difference and similarity between the two. In like manner new branches are studied and new comparisons made.

For some weeks but little use is made of microscopes or text-books. In nearly all important cases specimens are examined, and a need felt for a name or a definition, before these are given. After a few lessons, answers to the following points are brought out:

Is there any definite proportion of active to dormant buds in any year? Where do branches appear? Is there any agreement in growth as to length of branch and size of the annular ring each year? Is there any similarity of rapid or slow growth of all the limbs on a branch in each year? Is there any certain number of leaves on a year's growth, or any definite proportion between the lengths of internodes? Can the smallest, old, dormant buds be made to grow? Is there any order as to what buds grow and what remain dormant? How much and on what years did each limb grow? There are three ways of telling the age of a branch—by the bud-rings, stem-rings and color of the bark. The shape, other peculiarities, and variations of buds, and leaf-scars in any species are noted; also the arrangement and position of the buds and bud-scales. Is there any order in the arrangement of the specks on a branch? Do the specks change as the branch grows older, and if so, how? How many leaves each year were required to build up the branch? How large were the leaves and the amount of surface exposed? Did the amount of growth in any year correspond to the number of leaves on the twigs and main axis? Does the ring of wood depend on the growth of the main axis? The arrangement of the scales of cones are studied in this connection. In each case the students are requested to try to classify the topics or place them under proper headings. They are now ready for a book lesson on branches, buds, and phyllotaxis, and they will read it with interest and profit.

In like manner any other topic can be taken up, provided plenty of specimens can be supplied, as roots, seeds, fruits, stamens, petals, sepals, leaves, etc. After each of these comes the study of the book. Beginners should study plants and refer to books, and not study books and refer to plants.

Some of the above topics are admirably well adapted for theses or compositions. I usually give each student one or more of them each term. For the younger students this year, the following topics will serve as examples: "Compare the leaves and young branches of the Scotch pine with those of the Austrian pine," or "black spruce and Norway spruce," or "sugar maple and red maple," or "butternut and black walnut."

As students advance in systematic botany and morphology, other subjects for theses are assigned, of which the following may serve as examples:

The arrangement and development of parts of the flower, with reference to its self-fertilization, or fertilization by insects, birds, winds, or by other means. Below are samples: Moth-mullein, dog-bane, common sage, thyme, red clover, plantain, milkweed, mallow, thistle, cleistogamous flowers of violet, campanula, iris, lobelia, martynia, Indian corn, wild balsam. One student may study the vines of dodder; one, the climbing of Virginia creeper; one, the twining of the wild morning-glory; one, cucumber tendrils; one, unequal-lobed leaves; one, the time of opening and closing of flowers; several, the development of some irregular flowers; one, the order of dehiscence among anthers of a flower; one, the honey-glands of some flower; glands in other parts of plants than flowers; growing beans in all sorts of soil and with more or less light; the germinating power of weevil-eaten peas; the relative order of development of stamens and pistils of many plants of Indian corn; for what do ants visit plants?

The theses were made up of original investigations and experiments, and were read in class. Students use stage microscopes. Later in the course, each is supplied with a good compound microscope, in a suitable room, where he works daily for a term. Pupils prepare their own slides, make notes and drawings, which are preserved at the college. Most of the time for the term is spent on one plant, a favorite of which is the common pumpkin.

I have been quite particular to show the course pursued, because some think it is difficult. Aside from collecting specimens, it is an easy way for the teacher. But little time is occupied in lectures. Short talks of fifteen or twenty minutes are often given. Zoölogy and physiology can be equally well taught in the same manner. Students are shown how to become independent and reliable observers and experimenters. Training is better than teaching. On this point I quote briefly from a recent number of the New York Tribune. "Teaching communicates ideas, training forms habits. Teaching imparts knowledge, training develops power. In teaching, the adult explains words. In training, he shows methods. Under teaching, the child hears what is said; under training he sees what is done," and I may add he learns to do it himself. "Training is food which gives strength to run." To train is to show how. Training develops power, which is more valuable than knowledge.

The management of students' labor is somewhat perplexing. For perfect success it needs foremen with unbounded tact and an unlimited amount of patience. For work, students receive pay at a maximum rate of eight cents per hour. During one season, from spring till autumn, one class works on the farm; during the next season the same class works in the horticultural department. To a considerable extent the Seniors are employed as assistant foremen, with small gangs of hands, at various kinds of work. Some of them succeed well; many of them can never learn to manage others to good advantage. About half the Seniors work all the year in the horticultural department. One Senior is set over some portion of the department for the whole year. One looks especially after the vineyard, one the apple-orchard, one the orchard for pears, cherries, and plums, another the trees on the lawn, another the drives and paths, one the hot-beds and a portion of the vegetable garden, one the wild garden and testing seeds, one the plats of sample-beds of grasses, clovers, etc.; another certain experiments, another collecting and pressing plants for class-use and the herbarium.

Whenever any work is done in each of these places, the proper Senior is there to act as foreman in directing the labor of other students. Young men take great interest in the work over which they preside, often working extra hours, if necessary. They are allowed, as far as practicable, to choose the work they are to look after during this last year of the course. These young men assist in making experiments. They very often make some on their own account. For example, during one year, one crossed wheat for new varieties; one crossed wild and cultivated crab-apples; two crossed corn; two or three crossed lilacs; one observed the duration of flowers of several kinds; one crossed tomatoes; one observed the peculiarities in the germination of seeds; one studied monstrosities among flowers; another layered apples; one studied the nodding of the heads of wheat; another the depth of the roots of barley and oats; another tested "buggy" peas and those not buggy, for comparison. I could name pages of other small experiments undertaken by students.

Students work as well as they study, and feel much worse for receiving a low rate of wages than they do for receiving low marks for recitation or examinations.

Students talk about agriculture, and write about it in some form or other, in their orations and essays.

After graduating, what becomes of the students? Literary colleges send only from one to three per cent. of their graduates to the farm.

Not all who take a course in medicine become practicing physicians. More than half of those who take a law course do not engage in law. I have never heard any one find fault with these schools, because all of the graduates did not pursue a course in accordance with their special training.

Michigan Agricultural College has graduated 212 students, employed as follows:

Farmers	86	
Fruit culturists	8	
Professors of Agriculture or related sciences	13	
Instructors or foremen	3	
Students in agriculture	2	
Agricultural editors	2	
Apiarists	5	
Engineers	4	
Architect	1	
Landscape-gardener	1	
Veterinary surgeon	1	
U. S. Signal Service, Sergeant	1	
Machinist	1	
Total Industrial Arts		128
Business men	26	
Teachers	22	
Lawyers and law students	18	
Physicians and students of medicine	9	
Ministers and students of theology	3	
Editor of newspaper	1	
Deceased	5	
Total number of graduates		212

If we exclude those deceased, and one lady graduate, over three-fifths may be counted as now engaged in pursuits which are in keeping with the objects and training of the Agricultural College.

Some thirteen hundred other students have spent from one to three years at the college. So far as known, a large majority of these are farmers.

Of the graduates, one is professor of botany and horticulture in Cornell University; one professor of zoölogy and entomology in Michigan Agricultural College; one professor of agricultural chemistry in the University of Wisconsin; one professor of economic botany in the University of Missouri; one professor of botany in the Iowa Agricultural College; one professor of chemistry in Oberlin College; one professor of chemistry in the Agricultural College of Mississippi; one professor of agriculture in Kansas Agricultural College; one professor of mathematics in Michigan Agricultural College; one professor of agriculture in Purdue University; one professor of chemistry and horticulture in Colorado Agricultural College; one professor of agriculture in Texas Agricultural College; one professor of agriculture in Mississippi Agricultural College; three are foremen in Michigan Agricultural College.

One is associate editor of the American Agriculturist; one secretary of the Michigan State Horticultural Society; one has charge of the experimental and test gardens of a very large firm of seedsmen; one is a Trustee of Illinois Industrial University; one a member of Michigan State Board of Agriculture.

My remarks might be much extended in speaking of the high positions and success of other graduates, and of those who took a partial course. Although the list of graduates is not a long one, yet it is one of which the managers of Michigan Agricultural College are justly proud.

"Does the college farm pay?" This is a question often asked by the farmers of Michigan. Does it pay what? Does it return more money into the State Treasury than it draws out? Does it pay as a part of the apparatus with which to educate students? As a general thing, the farm returns more money than it costs to manage it, though sometimes the reverse is true. If the farm were managed purely for making money it would be worth much less for training the students than as now managed. It is proper to ask that no waste be allowed in conducting the farm.

For some time past people have mostly ceased to ask this question of our horticultural department, "Does it pay?" There is much time and labor spent in labeling trees and plants, in keeping the grounds in order, in planting and caring for ornamental trees, in enlarging and caring for the botanic garden and experimental plats. The orchards, vineyards, and gardens are planted with varieties by the score, where but one would be planted for profit, if only a large money return were anticipated. The grounds, orchards, and gardens pay as a great laboratory for our students, and the large number of visitors who come to gain information.

Should experiments be made at Agricultural Colleges? Some may think this a queer question and take it for granted that Agricultural Colleges were established to a great extent for this very purpose. So far as I can learn the teaching force in nearly all such colleges is less than it ought to be. If experiments are made with the present plans, the teachers are compelled to perform double duty. Good experiments cost money, and they cost something else which is equally valuable, viz.: careful plans and skilled labor.

Most people greatly underestimate the difficulties of conducting experiments which shall be valuable after they are performed. For several reasons I should say, by all means conduct experiments at Agricultural Colleges. There should be a separate fund which should be perpetual, and to a great extent separate persons should be employed to make experiments. The public and trustees of colleges are not likely to think it necessary to diminish the time which a professor devotes to teaching, because he devotes considerable time to making experiments.

Good papers and books, agricultural and literary, will always be sought and read by farmers who keep abreast of the times. The less education the members of a family possess, the poorer and cheaper will be the papers and books which they read. The man who thinks the most and the deepest enjoys the most. It is somewhat disheartening to see what trashy papers, called "agricultural" will be pronounced "good" by a certain class of farmers. Some of them are poor hash and make feeble diet.

On the whole our agricultural papers are steadily growing better, and will continue to grow better, and the best will be better patronized, as our farmers become more generally well educated. Our Agricultural Colleges, I am certain, are doing more than any other one thing to improve the quality of our agricultural books and papers. Farmers' Clubs accomplish something in the same direction. They are worth all they cost, and should be encouraged; but they are very few in number, and most of them feebly sustained.

Granges, at least as we have them in Michigan, are better than clubs, because there are many more of them, more people attend them, the meetings are held oftener, they include all the adult members of the family, and closely connect the farmers all over our country.

Well-conducted farmers' institutes accomplish a good work, not so much because the mass of men who attend them learn a great deal during a few short sessions, but because they arouse zeal and enthusiasm, and cause a farmer to think more of his calling.

For the past five or six winters, the Michigan Agricultural College has held six institutes every winter, in various parts of the State. The State Horticultural Society holds three meetings and one fair. Perhaps ten or fifteen other general gatherings of farmers are held each year, for similar purposes. At these meetings will be present from 200 to 1,000 farmers, including members of their families.

At these gatherings we learn from each other. The college men glean items of great value from the experience of men who work their farms; the farmer receives new hints from the college men to be put in practice. Each helps the other.

Books, papers, clubs, granges, fairs, institutes are all valuable, but they are a poor substitute for a systematic training, under good teachers, in several of the sciences.

The habit of close observation is of inestimable value to every farmer; without it he loses many golden opportunities. With close observation generally comes accuracy and correct judgment. A thorough scientific education is also valuable, because it gives the one who acquires it the habit and power of readily acquiring information whenever he may desire. The self-made man, if he acquire this habit, has to travel the same road as the college man, though he labors under a great disadvantage in not having teachers to guide him in the easiest way.

In our country, there are many thoroughly educated farmers who are an honor to their noble occupation. We need one hundred where we now find but one.

On the farm there is need of more brain-work and less with the hands. At all times brain-work pays the best returns for the time given to it. Labor with the hands is easier than work with the head. If a greater proportion of farmers were well-educated, people would consider farming a higher business. Any occupation takes rank according to the culture of those who are engaged in it. Farmers need to mingle more with each other, and with the best of those who are engaged in other occupations.

REPORT FROM THE SELECT COMMITTEE ON FORESTRY, GENERAL ASSEMBLY OF OHIO.

House Resolution No. 128, by Mr. Stubbs.

Resolved by the House of Representatives of the State of Ohio, That the State Board of Agriculture be, and they are hereby, requested to print, in the next volume of the Ohio Agricultural Report, the paper submitted by the Select Committee on "Forestry," appointed at the last session of this body.

Mr. Bloom, from the select committee of three, to whom was referred House Resolution No. 78, made the following report:

The Committee beg leave to report that, near the close of the first session of the present General Assembly, the following resolution was referred to them, viz.:

Resolved, That the Committee on Agriculture inquire what legislation, if any, can be devised to encourage the growth of timber, with leave to report by bill or otherwise.

Likewise, at the commencement of the present session, a memorial from the American Association for the Advancement of Science, in relation to the need of attention to our future forest supplies, was also referred to the same committee, both of which the Committee report back with the following statement:

The Committee, soon after the close of the last session, opened correspondence with the Bureau of Agriculture at Washington, and with eminent gentlemen within Ohio, who had given the subject much thought, and from other sources sought to gather all possible information on the subject, and from these have come to the following conclusions: They are convinced that within Ohio the consumption and waste of the forests much exceed their restoration by natural growth; that the native supply of timber of the better qualities is rapidly becoming less, while the demand for the various purposes for which it is used is rapidly increasing from year to year. This fact must inevitably lead to serious inconvenience and injury to the public welfare, and it is time that the attention of our citizens be fully aroused to the impending danger. It is needless to enter upon a discussion of this proposition, or attempt to bring the subject within the compass of a committee report. From the information gathered by the Committee, the testimony is overwhelming that the interests of agriculture are greatly promoted by the presence of a due proportion of wood-land in a country, and that they suffer when clearings are carried to extremes. The reasons for this are so numerous as to preclude the possibility of even alluding to them here at length. So important to the welfare of the people is this subject deemed to be, that nearly every government of the civilized nations of Europe has taken steps toward averting the evils following the disproportionate destruction of timber, and very many of the States of this Union have long since legislated upon this subject, but, after all, very little can be done by American States in the way of legislation. The title to lands is almost exclusively vested in private individuals, without conditions as to timber culture, from the Government of the United States, from which title was chiefly derived.

The proprietors are the exclusive owners; no laws can be passed which can take from the owner this right: he is the lord of the soil and can manage its use as seems best to him, and any attempted interference with this absolute right would be utterly futile. Neither a restriction upon his right to cut and destroy, nor compulsion to plant and grow, can be enforced—his lands are his own, his estates his kingdom, and his will his law, save when it is taken for public use. He naturally prides himself upon his liberty to enjoy it as he pleases, and upon no conditions will he be persuaded to part with any portion of his supreme authority to control it, save by inducements held out to him to preserve from destruction or to plant for future use. There is no way, either, to arrest the approaching evil or to promote the future general welfare in regard to this subject. To the owners of lands, therefore, must the general public alone turn for the adoption of measures looking to the accomplishment of the purposes aimed at in the resolution. To them alone can legislation address their arguments. Happily, they have an intelligent constituency to address, and to accomplish ends they need only to convince them of the necessity of action, and place before them proper incentives, and doubtless in this way great good can be accomplished. The American Association for the Advancement of Science, already referred to, has had this same subject under consideration, and has arrived at the same conclusion. Under these circumstances, the association has pointed out a few methods by which this may be accomplished, a few of which your committee append, as having some force within our own State :

First. By protecting, by law, trees planted along highways and upon public grounds and streets. This has already been done in Ohio.

Second. By a law exempting from taxation the increased value of land from the planting of trees, where none are growing, for such period as may appear proper. The provision of our constitution, requiring all property to be taxed at its true value in money, is a barrier in the way of doing this in Ohio. Possibly a law might be passed offering a bounty to such as would engage in timber culture, which might reach this method of promoting the object, and to do so through our agricultural society, in the shape of premiums at our fairs, might lead to good results.

Third. By prizes for the best essays and reports upon the subject of forest culture, which might also, in some degree, stimulate our agriculturists in the same direction, and call public attention to the evils fast approaching from a destruction of too large a proportion of our timber lands.

Fourth. By encouraging educational institutions within the State to introduce a course of instruction having reference to this subject. Upon this point our agricultural college, endowed by the general government, has a responsibility resting upon it which should not be neglected.

Fifth. The prevention of forest fires by imposing penalties against willful and careless setting of such fires and providing for the prompt extinguishment thereof when kindled, which has also already been provided for in our laws.

Sixth. Under favorable circumstances model plantations might be established by State governments under the care of professional teachers of forestry—again a matter within the province of such agricultural colleges.

Eighth. The appointment of a commission of forestry under State authority, analogous to the commission of fisheries, might prove of some service, by continually holding up before the public the important subject, and in promoting efficient measures for the advancement of this interest. It would seem to your committee that this is a duty the State Board of Agriculture could well discharge through its Secretary. When the foregoing means have been properly used, it would soon exhaust the power possessed to produce the desired result.

This matter almost wholly depends upon the intelligence of the people themselves, who are generally not slow to appreciate advantages, or to foresee real danger when made known to them, and when once fully realized, we believe no time will be lost in seeking to apply the remedy. These measures here recommended, if taken up by the people, by agricultural societies and by our agricultural college, would tend to awaken a deeper interest in the subject than is now felt, and lead to an intelligent understanding of the danger to be met and the remedy to be applied. It would diffuse useful information, provide a convenient mode of collecting and exchanging experiences on the subject, educate public opinion to a degree which might finally sustain more energetic measures, as their necessity might press themselves upon the public, and thus in the end lead to valuable results. With the hope that the report of your committee may lead our agriculturists to take up this subject, and through the various channels open to them, through the college and societies, and by the employment of the various means suggested without at present any positive legislation on the subject, a deeper interest may be aroused among the citizens of the State, calculated not only to spare the wanton destruction of timber yet remaining, and promote its further growth in the future, your committee submit their report, and ask to be relieved from a further consideration of the subject.

S. S. Bloom,
D. C. Stubbs,
D. Gano Ray.

CRUSHED LIMESTONE AS A FERTILIZER.

[Strong efforts are now being made in Ohio to introduce ground limestone as a fertilizer, and many letters of inquiry are received at the office of the State Board in regard to its value. The following by Professor Cook, of the New Jersey Agricultural College, is reprinted from the Country Gentleman, with the questions that called it forth].

Eds. Country Gentleman: Does the burning of lime add to or abstract any good properties from the limestone as a fertilizer? What is the difference in the action on the soil between ground limestone and burnt limestone, or lime? Has ground limestone any merit as a fertilizer in preference to burnt lime? What quantity is generally applied to the acre when used? G. A. K. *Lamartine, Pa.*

The use of crushed or ground limestone as a fertilizer has been occasionally suggested for many years past. It was very widely distributed and tried some years ago under the name of the Grafton fertilizer, said to have been made in New Hampshire. But its effects were not in any way marked. It was also ground in Sussex county, New Jersey, a number of years ago, and tried as a substitute for lime; but its results were not encouraging. Clam-shells and oyster-shells have also been ground and sold for manure, but the business was not successful.

There is no apparent reason why ground limestone should be any better than the calcareous marls which are found in many of the lakes and ponds in New York and New Jersey, or in those deposits along the seashore everywhere from New Jersey to Florida. These marls have been found useful when applied in heavy dressings, but they are too bulky to bear the expenses of transportation to any considerable distance. Fine carbonate of lime, either from shell-marl, leached ashes, ground limestone, or any other source, is an important constituent of fertile soils; but if sold, it must be at a very low price, or it cannot compete with air-slaked lime, which is much finer, and in the majority of cases would be better.

If ground carbonate of lime is to be used, it would be thought that clam-shells and oyster-shells would make the best material for the purpose on account of the phosphoric acid and the animal matter in them. But a careful analysis shows that the clam-shell contains 96.45 per cent. of carbonate of lime, and the oyster-shell 97.14 per cent. And of phosphoric acid, the former contains only .04 of 1 per cent., and the latter .07 of 1 per cent., while of organic matter, neither of them contains as much as 1 per cent. The rest of the shells consists of small quantities of iron, magnesia, soda and insoluble matters. There does not seem to be much in the nature or uses of carbonate of lime as a fertilizer to encourage any one to erect expensive machinery to either crush or grind limestone rock to prepare it for that use.

THE NITROGEN SUPPLY.

[The following, bearing on the Nitrogen Supply, is by Dr. J. B. Lawes, LL. D. F. R. S., the eminent English authority on Agricultural matters. It is reprinted from a recent number of the Rural New Yorker].

At Rothamsted, in the middle of May of the present year, I planted a few seeds of corn, which I had received from a gentleman living in Baltimore, upon that portion of my land which has grown a permanent wheat crop for forty years without the application of any manure.

In the adjoining field, which is under experiment with permanent barley, potatoes, and leguminous crops, I planted about 100 seeds, placing three together, and allowing them the space of a square yard or more from which to collect their food.

The plot of ground upon which they were planted is outside the portion of the field under experiment; it certainly has received no dung for the last thirty years, and may be described as a piece of waste land which has been plowed with the rest of the field, but has not been cropped, though vegetation has sprung up principally in the form of thistles or annual weeds.

My object in sowing the corn was a very simple one. I wished to ascertain whether the color of the plant under different foods corresponded with that of the various cereal crops which we have under experiment.

At the period at which I am writing—August 22—the corn upon the unmanured wheat land is only one foot high; there is no leaf that is one inch in width, and the color is yellow, or a yellowish-green.

In the adjoining field some of the plants are between four and five feet high, while the leaves are three-and-a-quarter inches wide, and of a very dark rich green; other plants, although growing and luxuriant, are much paler in color. In this field I have used mineral manures alone, and mineral manures with nitrates.

In the same field, with the corn and close to it, there are fifteen different sorts of leguminous crops growing; they are all manured with (1) various mineral manures alone, and (2) with the same minerals, and in addition nitrates or salts of ammonia.

Here we have no changes in the color of the plants due to the influence of the various manures; there are none of those varieties of tint from a yellowish-green to a greenish-blue, which in the evening appears almost black, that we find in some of our graminaceous crops under experiment. A practiced eye might detect in some cases a brighter and more healthy green, but that is all.

So far as the corn is concerned, by a comparison of the produce grown on the permanently unmanured land, and that grown on the field supplied with minerals and nitrates or salts of ammonia, it is evident that the plant has profited largely by the application of the manures. At the same time, while I think that corn, in common with the other cereal crops, is dependent upon a liberal supply of nitric acid *in the soil*, I must not in saying this be supposed to advocate its application artificially. I quite agree with Mr. Stewart in thinking that mineral manures alone should be used, or mineral manures with the addition of a small quantity of nitrogen, so long as they enabled the farmer to grow one hundred bushels of corn or even a much smaller crop than that per acre.

The only difference between Mr. Stewart and myself is this: I think that it is to the soil rather than to the atmosphere that we must look for the supply of nitrogen; while Mr. Stewart's view is that the poverty of his soil does not admit of so large a supply being yielded.

This question can only be set at rest by the continuous growth of corn under mineral manures alone; and even under such circumstances many years might elapse before satisfactory conclusions could be drawn. I have more than once, when writing upon American agriculture, pointed out the immense advantage which United States farmers possess over ourselves and others who live in climates not suitable for the growth of cereal crops.

It is quite true that the United States farmer is fully aware of this advantage, and does not require to have it pointed out by me; but, at the same time, I may possibly, by the aid of science, help him to understand why it is that he can grow a much larger crop of corn, than he can of any of the other grain crops; and, further, when his land is more or less exhausted, why mineral manures will be more effectual when applied to the corn than when applied to other grain crops.

At Rothamsted we are now engaged in writing upon the subject of rain water and drainage, and in the Journal of our Royal Agricultural Society, now being printed, will be found an account of the composition of rain water passing through an uncropped soil.

The article is well worth the study of those who wish to know what is taking place in our soils; but I will here refer only to one result, by way of illustrating my present subject.

The month of July, 1880, was exceedingly wet, and for the season of the year, an unusual amount of water passed through our drain gauge soils. At the beginning of August the soils had lost the greater part of the nitric acid.

August was a very dry month and hardly any water passed through the soil; September was excessively wet, nearly six inches of rain having fallen, of which four inches passed through the soil.

What was the result?

We find, by analysis of the drainage waters, that the nitrogen as nitric acid washed out of the soil, if calculated upon an area of an acre, would amount to sixteen pounds, which is equal to the amount contained in 100 pounds of nitrate of soda, and not much less than what would be contained in 2,000 pounds of ripe corn as it stands in the field!

This formation of nitric acid has taken place upon a plot of the ordinary arable soil of my farm, which has been kept free from vegetation, and has been washed by the rain-fall for the last ten years.

If such a formation of nitric acid takes place in the Rothamsted soil during one short month, what must be the amount liberated in the United States soils in the interval between the time when the wheat is ripe, and the time when the corn ceases to collect food from the soil.

In these facts we have surely a very simple explanation of the reason why more benefit is derived from the application of mineral manures to corn than to other grain crops.

I abstain from entering upon any question with regard to the *source* of the nitrogen which we find in our drainage water, and will merely point out that it could not have been obtained from the atmosphere by plants, as the soil was kept free from vegetation.

REPORT OF THE AWARDING COMMITTEE ON COUNTY AGRICULTURAL SOCIETY REPORTS.

To the Ohio State Board of Agriculture:

Gentlemen: The undersigned committee, appointed to award a first, second, and third premium on Reports from County Agricultural Societies, as made to the President of the Ohio State Board of Agriculture for publication in the Annual Agricultural Report, beg leave to say, that we have carefully examined the various reports. We have considered as of chief importance *the value* of the agricultural information imparted, and the clearness with which it was conveyed, and have awarded the first premium, gold medal, to the Clinton County Society; the second premium, silver medal, to the Washington County Society, and the third premium, white medal, to the Knox County Society.

Respectfully submitted.

N. S. Townshend,
W. I. Chamberlain,
J. W. Fleming,
Committee.

APPENDIX.

FOURTEENTH ANNUAL REPORT

OF THE

OHIO STATE HORTICULTURAL SOCIETY,

FOR THE YEAR 1880–81.

[ORGANIZED IN 1847, AS OHIO POMOLOGICAL SOCIETY.]

OFFICERS OF THE SOCIETY FOR 1881.

Dr. J. A. WARDER, Cincinnati	*President.*
N. OHMER, Dayton	*Vice President.*
G. W. CAMPBELL, Delaware	*Secretary.*
LEO WELTZ, Wilmington	*Treasurer.*

AD INTERIM COMMITTEE, WITH ABOVE OFFICERS.

G. S. INNIS	Columbus.
J. J. HARRISON	Painesville.
G. H. MILLER	Norwich.
GEO. W. TROWBRIDGE	Glendale.
J. K. NIESZ	Canton.

This report is published as an Appendix to the report of the Ohio State Board of Agriculture (18,000 copies), and a separate edition for the members of the Society. To secure the benefits of this wide distribution of the report, and save expense to the Society, the printing has to be delayed to a later date than would otherwise be done—the time of the Agricultural Report.—[*Secretary*].

(For list of members, see last two pages).

OHIO STATE FAIR.

The Thirty-first Annual Fair of the State of Ohio was held in the city of Columbus, on Monday, Tuesday, Wednesday, Thursday, and Friday, beginning August 30, and closing September 3, 1880.

Pleasant weather and a liberal Premium List brought out a large attendance, as well as fine displays in nearly all the varied exhibits. The fruit and vegetable displays, though quite creditable, were not quite equal to those of some former years. The early period at which the Fair was held being too early for late Fall and Winter apples, and too early also for the grape-growers of the Lake Shore and Islands, the display of these fruits was necessarily below the average. The Floral Department was well represented, though the number of exhibiters was not very large. The following were among the principal exhibiters in the Fruit and Floral Departments, and among whom the names of many members of the Ohio Horticultural Society will be recognized:

Gatch & Sons and J. L. Teal, of Milford, Clermont county, were awarded the first premium, of a Diploma and $40, for the best collection of Fruits from any county in Ohio.

Isaac Freeman, of New Carlisle, Miami county, took the second premium for the second best county collection of Fruits—$25.

APPLES.

The display of Apples was large and very creditable to the exhibiters, notwithstanding the early period of the exhibition; this being also the "bearing year.".

To Morey & Benschoter, of Sandusky, were awarded several premiums: $10 for best display of 15 varieties; $5 for best 6; $2 for best 3 large; and $3 for best basket (half bushel) of 6 varieties Summer and Fall Apples. Also $15 for best display of 30 varieties; $5 for best 5; $5 for best 15 varieties (half bushel) Winter Apples; and 7 premiums, of $2 each, for best plates of five specimens of Belmont, Duchess of Oldenburg, Fall Pippin, Gravenstein, King of T. Co., Peck's Pleasant, and Red Canada.

Geo. Freeman, of Tadmor, was awarded $5 for second best display of 15 varieties; $3 for second best 6; and $1 for second best varieties for dessert of Summer and Fall Apples. Also $8 for best 10 varieties; $5 for best five plates of large; and $3 for second best 5; $8 for best 6 for market; and $8 for second best display of 30 varieties of Winter Apples. Also 7 premiums, of $2 each, for best plates of five specimens of American Summer Pearmain, Jeffries, Northern Spy, Western Beauty, Twenty-ounce, Stark, and Wagener.

J. L. Teal, of Perrin's Mills, was awarded $3 for best 3; and $1 for second best 3 varieties Summer and Fall Apples; also $5 for second best 6 for market, Winter

Apples; and 4 premiums, of $2 each, for best plates of five specimens of Baldwin, Roxbury Russet, Smith's Cider, and White Pippin.

J. R. Hurst, of Chillicothe, was awarded $2 for second best 3 varieties Summer and Fall Apples; and 5 premiums, of $2 each, for best plates, five specimens, of Ben. Davis, Fall Wine, Jonathan, Rambo, and Newtown Spitzenburg.

Daniel Duer, of Millersburg, was awarded $2 for best 3 varieties for market; $2 for best varieties for dessert, Summer and Fall Apples; and 3 premiums, of $2 each, for best plates, five specimens, of Fallawater, Ohio Nonpareil, and Rome Beauty.

A. M. Gatch & Sons, of Milford, were awarded $2 for second best 10 varieties, (half-bushel,) Summer and Fall Apples; and $3 for second best half-bushel of 10 varieties in Winter Apples. Also 3 premiums, of $2 each, for best plates of five, Clermont, Hubbardston's Nonesuch, and Benoni.

Lewis Beazle, of Glen Este, was awarded $5 for second best 10 varieties of Winter Apples; $2 for best variety for dessert; and $2 for best plate of five Porter.

Levi Buchwalter, of Hallsville, $2 for best plate of five Belleflower.

S. R. Moore, of Zanesville, $2 for best plate of five Grimes' Golden.

J. H. Cole, of Harlem, $2 for best plate of five Rhode Island Greening.

PEARS.

N. Ohmer, of Dayton, was awarded $10 for best 12, and $8 for best 6 varieties of Summer, Fall, and Winter pears; $6 for best 6 varieties for market; $3 for best plate of large pears; and 5 premiums, of $2 each, for best plates of five specimens of Beurre d'Anjou, Duchesse d'Angouleme, Lawrence, Onondaga, and Vicar of Winkfield.

Geo. Freeman, of Tadmor, was awarded $15 for best display of 20 varieties; $5 for second best 6 varieties Summer and Fall; and $2 for best variety of dessert; $2 for second best plate of large pears. Also 3 premiums, of $2 each, for best plates, five specimens, of Belle Lucrative, Beurre Bosc, and Beurre Diel.

John Poste, of Columbus, was awarded $5 for second best 12 varieties Summer and Fall; and 2 premiums, of $2 each, for best plates of five Howell, and Beurre Clairgeau pears.

Morey & Benschoter, of Sandusky, were awarded $3 for best half-peck of Seckel; and 2 premiums, of $2 each, for best plates of five Flemish Beauty, and Seckel pears.

J. L. Teal, of Perrin's Mills, was awarded $3 for second best 6 varieties for market; $3 for best half peck of Bartlett's; and $2 for best plate five Columbia pears.

Lewis Beazle, of Glen Este, $2 for best plate of five Bartlett pears.

Leo Weltz, of Wilmington, was awarded $8 for second best display of 20 varieties; and $2 for best plate five Esperen pears.

J. J. Nelson, of Columbus, $2 for best plate five Sheldon pears.

J. R. Lovejoy, of Columbus, $2 for best plate of five Louise Bonne de Jersey pears.

PEACHES.

Hurst & Hurst, of Chillicothe, were awarded $10 for best display of twelve varieties; $5 for best six varieties, 6 each; and $1 for second best three varieties, 6 each.

C. H. Gatch, of Milford, $3 for second best six varieties, 6 each.

Wm. H. West, of Chillicothe, $3 for best three varieties, 6 each; and $1 for second best one variety of six.

N. Ohmer, of Dayton, $2 for best one variety of six.

S. D. Riegel, of Adelphi, $2 for best new seedling.

PLUMS.

J. L. Teal, of Perrin's Mills, was awarded $2 for best three varieties.

Geo. Freeman, of Tadmor, $1 for second best three varieties.

Hurst & Hurst, $2 for best plate of twelve specimens of Plums.

QUINCES.

H. Bookwalter, of Hallsville, was awarded $3 for the best peck; and $3 for the best twelve Orange Quinces.

David Jones, of Hallsville, $3 for the best twelve Pear Quinces.

GRAPES.

Geo. W. Campbell, of Delaware, was awarded $10 for best display of 15 varieties; $3 for second best three varieties, 3 bunches each: $3 for the best new seedling; and 3 premiums, of $2 each, for best six bunches of Lady, Croton, and Rebecca Grapes.

Jacob Linxweiler, of Dayton, was awarded $10 for best 10 varieties, 3 bunches each; $5 for second best six varieties, 3 bunches each; and 3 premiums, of $2 each, for best six bunches of Delaware, Eumelan, and Martha Grapes.

L. A. Ganson, of Urbana, was awarded $5 for best three varieties, 3 bunches each; and $2 each, for best six bunches Hartford Prolific and Salem Grapes.

J. L. Teal, of Perrin's Mills, was awarded $8 for best six varieties, 3 bunches each; and $2 each, for best six bunches Catawba and Norton's Virginia Grapes.

G. F. Newton, of Millersburg, $2 for best six bunches Concord.

W. J. Keller, of Miamisville, $2 for best six bunches Ives' Seedling.

Jno. Pfiffner, of Delaware, $2 for best six bunches Wilder Grapes.

NATIVE WINES.

Paul Smith, of Cleveland, was awarded a Silver Medal for the best display of pure grape wine (Ohio); and $5 each, for best samples of Catawba, Delaware, Norton, and Ives wines.

S. D. Riegel, of Adelphi, $5 for best sample of Concord wine.

FLOWERS AND PLANTS. (*Professional.*)

J. F. Sked, of Westerville, was awarded $10 for best collection of plants, and finest arrangement; $15 for best collection, and $5 for best single specimen of Palms; $15 for best collection, and $5 for best single specimen of Variegated plants; $10 for best collection new plants; $8 for best collection, and $2 for best single specimen of Fancy Caladiums; $5 for best single plant specimen; and $2 for best single specimen of Ornamental Grass.

Morris Evans, of Columbus, $10 for second best collection of plants and arrangement; $15 for best collection, and $5 for best single specimen of Ferns; $5 for best pair vases of living plants; $3 for best specimen Cactus; $25 for best display of Floral Designs; $15 for best arranged and largest display of Cut Flowers; and $10 for best display of Table Designs.

J. B. Romans, of Columbus, $8 for best collection, and $2 for best single specimen of Begonias.

J. L. Stelzig, of Columbus, $5 for best collection of Cannas; $5 for best collection of Ornamental Grasses; and $1 for best single specimen Aloe.

E. A. Roth, of Columbus, $6 for best six Hanging Baskets, living plants; and $5 for best piece of Rustic Work.

Miss E. L. Grant, of Cleveland, $5 for best pair of Hand Bouquets; and $3 for second best pair of Parlor Bouquets.

H. S. Matthewman, of Xenia, $15 for second best display of Floral Designs; and $3 for second best pair of Hand Bouquets.

Leo Weltz, of Wilmington, $5 for best display of Dahlias.

Wm. Halley, of Columbus, $10 for best Aquarium.

FLOWERS AND PLANTS. (*Amateur*).

Mrs. J. M. Pugh, of Columbus, was awarded $10 for best collection Stove and Green-house Plants; $5 for second best collection; and $3 for best single specimen of Variegated-leaved plants; $3 for best collection Aloes and Cactus, in pots; $2 for 6 best specimens Aloes; $2 for best collection of Fuchsias, in pots; $5 for best collection of Ferns and Lycopodiums; $5 for best collection Plants on trellises; $3 for second best 6 Hanging Baskets, living plants; $3 for second best collection Dahlias, and $3 for second best display of Cut Flowers.

Mrs. N. E. Lovejoy, of Columbus, $8 for best 12 varieties Stove and Greenhouse Plants; $8 for best 10 Variegated-leaved Plants; $3 for best 6 Coleus; $3 for second best collection Geraniums; $2 for best specimen Geraniums; $5 for best collection Roses, in bloom; $3 for best Verbenas, in pots; $3 for best Cut Roses, named; $3 for second best collection of Verbenas, named; $2 for best display Geraniums; and $3 for best display of Carnations, in variety and quality.

Ada Gregory, of Marion, $5 for best specimen of Plants, in or out of bloom; and $2 for best six specimens of Cactus.

Mrs. P. J. Lofland, of Columbus, $5 for best six Hanging Baskets, living plants; $5 for best 10 varieties Coleus; $8 for best Table Design, cut flowers; and $2 for second best 12 Verbenas, named.

Mrs. Jos. Bradford, of Columbus, $8 for best collection, 10 varieties, and $5 for best six specimens Begonias; $5 for best collection Geraniums; $3 for best 12 distinct Verbenas, named; $3 for best collection Phloxes, named; $3 each for best displays Balsams, Pansies, and Gladiolus; $2 for best display Double Zinnias; and $5 for best display of Cut Flowers.

Mrs. A. L. Perry, of Delaware, $5 for best 12 Dahlias; $2 for best display Coxcombs and Amaranths; and $3 for best collection Native Flowers, named.

Mrs. J. Zirkle, of Columbus, $5 for best collection of Verbenas, named; and $3 for best display of Asters.

Alice A. Tucker, of Columbus, $3 for best pair of Parlor Bouquets (12 inches).

STATE FAIR MEETING.

COLUMBUS, OHIO, *September* 1, 1880.

The Ohio State Horticultural Society met at the Board of Trade Rooms, and was called to order by Dr. J. A. Warder, President of the Society.

On motion of N. Ohmer, G. S. Innis was appointed Secretary for the evening.

The President then read a notice of the life and labors of our late Secretary, M. B. Bateham.

Mr. Geo. W. Campbell then moved that the article just read by President Warder be entered in full upon the minutes of the Society. Carried unanimously.

Dr. J. A. Warder was by the Society unanimously appointed Chairman of a Committee on Resolutions on the life and public services of our lately deceased Secretary, Mr. M. B. Bateham, with power to fill up the committee. Messrs. Geo. W. Campbell and W. I. Chamberlain were then appointed to fill up the committee.

Mr. Chamberlain then addressed the Society on the life and influence for good of M. B. Bateham.

Dr. Warder submitted a paper on the same subject.

It was suggested that the above mentioned committee take into consideration the subject of erecting a suitable monument in memory of the life and services of our deceased Secretary, M. B. Bateham. The monument to be placed over his remains near Painesville, Ohio.

Mr. Newton presented a seedling apple from an old tree in his orchard, in Holmes county, Ohio. Apple a very good Fall apple, and recommended for trial by all amateurs, at least.

All other apples passed without recommendation.

Mr. Beebe presented a specimen pear for recognition. Believed to be Stevens' Genesee.

Upon invitation of the Columbus Horticultural Society, the next Annual Meeting of the Ohio State Horticultural Society was appointed to be held at the Board of Trade Rooms, in the City of Columbus, in December, 1881, at such time as shall be designated by the Executive Committee.

The following new grapes were exhibited :

Mr. J. Linxweiler, from Dayton, Ohio, presented several new seedlings, originated by Nicholas Grein, of Missouri. One called Missouri Reissling, and some others which were only designated by numbers. Mr. Linxweiler stated that these seedlings were grown from the foreign Reissling. Mr. Campbell said that in Missouri they were understood to be seedlings from the Taylor, or Taylor's Bullitt grape, and of the same parentage as the Elvira and Noah, and several other grapes which were regarded as valuable, both as table and wine grapes, in Missouri and the Southwest. The grapes exhibited by Mr. Linxweiler were handsome, and of fair quality, but not quite ripe.

Mr. Campbell presented a new seedling grape, not named—a large, black variety, pure flavored, and somewhat of the Hamburgh character. This grape was produced from Concord seed, which had been cross fertilized with the Muscat Hamburgh, the foliage of the vine having the thick Concord character, while the fruit is entirely free from foxiness and much like its parent Hamburgh. This grape was awarded a premium at the Ohio State Fair as the best new seedling.

A rather handsome black grape, with long bunches, medium-sized berries, compact cluster, and fair quality, said to be a seedling from Hartford Prolific, originated by James Matthews, of Knoxville, Iowa, was also presented by Mr. Campbell, who reports the vine as very vigorous and perfectly hardy. The quality is a little better than Hartford, but far from first-rate. It is, however, an improvement, in so far that it holds well to the cluster, and like the Hartford, is very productive. Only desirable in rigorous and unfavorable sections, where better kinds cannot be grown; but among the best of hardy and healthy grapes of poor quality.

A small, white grape of exquisite flavor, named Purity, a native cross of Delaware, with Martha or some other hardy variety, is recommended as hardy, a stronger grower than the Delaware, and promising, by reason of its very fine quality, for amateur and table use. This grape was also presented by Mr. Campbell.

Attest: G. S. INNIS, *Sec'y Pro Tem.*

FOURTEENTH ANNUAL REPORT

OF THE

OHIO STATE HORTICULTURAL SOCIETY.

The fourteenth annual meeting of the Ohio State Horticultural Society was held at the Board of Trade Rooms, City Hall, in the City of Columbus, and was continued three days, December 8, 9, and 10, 1880.

The meeting was called to order by the President of the Society, Dr. John A. Warder, of North Bend, at 11¼ o'clock A.M. The office of Secretary being vacant, by the death of M. B. Bateham, the President called upon the Treasurer, Geo. W. Campbell, to act in that capacity at the present meeting, and until a Secretary should be elected.

There was a very fair attendance at the opening, which was afterward increased by new arrivals, rendering the meeting perhaps above the average in point of numbers, and of interest in the proceedings.

No regular programme having been prepared, the President appointed the following committee upon the order of business, to continue during the entire session, and arrange the business for each day: G. S. Innis, of Columbus; G. F. Newton, of Millersburg; J. A. Matthias, of Enterprise.

After which, upon motion, the meeting adjourned till 2 o'clock P.M.

A very creditable display of winter apples, and a few varieties of pears were placed upon the table during the forenoon. Some new, or unknown varieties were shown, a full report of which, by the committee, will be found in its place, hereafter.

Upon assembling at 2 o'clock, pursuant to adjournment, the committee reported the following order of business for to-day:

Address of Welcome, by Col. G. S. Innis.
Response by the President, Dr. John A. Warder.
Annual Address, by the President, Dr. John A. Warder.
Reports from members of the ad interim committee.

Dr. Warder introduced Mrs. Louise V. Boyd, as a duly accredited delegate from the Indiana Horticultural Society, with some very appropriate words of welcome, commending her to the courtesy and attention of the members of the Ohio State Horticultural Society.

Col. G. S. Innis, in behalf of the Columbus Horticultural Society, then delivered the following

ADDRESS OF WELCOME.

Mr. President and Gentlemen of the Ohio State Horticultural Society:

The people of the Capital City, and especially the members of the Columbus Horticultural Society, upon whose special invitation you have convened here to deliberate not alone on your own interests, but upon the interests of all the people of the State, welcome you to their city. We are particularly glad to express our admiration and respects to you as a body, who as individuals have left your homes, and voluntarily assembled here, that others in common and in like measure with yourselves, may partake of the benefits to be derived from your deliberations. You have, for a long series of years, assembled in like meetings with the present, without further hope of reward than improvement of yourselves and others in that noble occupation—Horticulture. When we reflect that Ohio has more than three millions of human beings for whom to provide the necessaries and luxuries of life, surely all have enough to do, and should make an honest and determined effort to make proper provision for those entrusted to their care. To guide this effort aright, and make it produce the best possible results, is the one object for which you have assembled. You have a wide and fertile field before you. You have already done much, yet more remains to be accomplished. When we older members look back to the time when you commenced your labors, and then view the present, and take notes of the improvements mainly brought about through your labors, we are inclined to ask, can it be possible that the next twenty-five years will equal the last, in the bettering of our horticultural products?

May we not hope for still more rapid improvement and better results? The Society has not outlived its usefulness. It has yet plenty of work to do. Look around us, all over the State. See the homes that need to be made beautiful. Beauty everywhere is refining. This, too, is the legitimate work of the horticulturist. Here is a prolific field for improvement. Almost virgin soil. A little advancement has been made, but the great ocean lies still before us. Let no one be discouraged, then, and conclude the work is all done. In fact it is just cleverly begun.

While to agriculture we are indebted for many of the substantials of life, such as wheat, corn, and the heavier products of nature, to horticulture we owe the enjoyment of the luxuries, such as vegetables, fruits, etc., as well as that crowning glory of all, the beautiful flowers. Were our grain crops cut short or destroyed by any calamity, the vegetable garden would go very far toward supplying the people with necessary sustenance. The potato, when grown in the garden, is a horticultural product, and Stevens says, that potatoes and salt have been known to nourish men completely. Another writer says, they are bread, without a mill. The same, in scarcely a less degree, is true of other vegetable roots. Then, we have in the garden a substitute for fruits. The tomato, which now adorns most tables at all seasons of the year. can scarcely be defined. Some call it a vegetable, others a fruit. It partakes of the nature of both, and is a good substitute for either. So that now, when our fruits are killed by the frosts and snows, the vegetable garden can almost replace them. This we owe to scientific horticulture. We meet, compare, and talk about the good and bad qualities of each, until the better classes are found everywhere, and the least desirable are discarded. Every citizen, in common with yourselves, is largely benefited. The million, never dreaming of where these improvements start, but in the quiet of their homes enjoy the benefit of your labors in common with yourselves.

The Horticultural Society has the satisfaction of knowing that this, too, is some of its work.

Then, when we get up into the fruits. What is more luscious than a good strawberry? Some lady said the Almighty might have made a better than the strawberry, but she was very certain that He had never done it. With our variety of fruits, we can now supply our tables the whole year, and always have something good. Just ask these old men and have them describe to you the quality of fruits, and especially of apples, before the work of the horticulturist began. Natural or seedling apples, wild strawberries the size of peas, wild grapes, the crab-apple, all replaced with the improved kinds. This is another object of your assembling here: To compare, consult and conclude which is worthy of further cultivation or trial, and which to abandon.

The most attractive, however, of all our labors are the beautifying of our homes, and the cultivation of flowers. Take a ride through your city or town, or visit country homes, and how few are made as beautiful as home should be. See that yard where shrubbery is tastefully arranged, a tree here and yonder where it should be, to afford the proper relief to the eye. Beds of variegated-leafed plants artistically arranged, interspersed with beds of brilliant flowers, all kept nice and clean. Who can help, even in passing, warming up in spite of himself, toward the inmates of such a home? It betokens refinement and good feeling, and naturally produces gratitude to the Creator for all His mercies. I doubt if ever a criminal was raised in such a home. Beautify your homes, parents, for the children. Your speaker well remembers of riding along the public highway with a friend, and coming suddenly by a home of this description, when he stopped in the middle of a sentence and cried out, "What beautiful flowers! Why, who could help loving these people?" This, too, is more work for your Horticultural Society—to be leaders and teachers of the people in making their homes beautiful. When we take into view our whole country, our valleys and plains teeming with fatness; our mountains and hills abounding with untold wealth; our climate most salubrious, free from the burning winds of Asia, and only an occasional blizzard, and that confined to the Northwest, we have abundant reason to be thankful to our Almighty Father for all His gifts to us as a people.

The different meetings of your Society are of much advantage to its members and their visiting friends in a social way. In this sense it is an educator of the people. By exchanging views all can have the benefits of the researches of each individual member.

In this way knowledge is much more rapidly increased. After meeting and holding counsel together for two or three days, we naturally warm up toward each other, become more united, are more fraternal, can do more good in our neighborhoods. So to speak, the rough corners of ourselves are rounded off, and we become more companionable. If vegetables, fruits, and flowers very properly receive so much of our attention in giving them the proper culture, surely the education of ourselves, and those who will be called upon to manage the affairs of this Society after us, should not be neglected. This is worthy of the noblest ambition. Let it no longer be a question as to the propriety of educating men; ah, and women too, for horticulturists, as well as agriculturists. There is no calling on earth that is better calculated to expand the minds of its devotees than that of horticulture, and its twin sister agriculture. With the people well educated, a famine, or even a serious want in this productive country, is simply impossible.

Ladies and gentlemen, I thank you for the kind attention you have given me, and I close now by hoping that the present meeting will be both profitable and pleasant to you all.

The President, Dr. Warder, briefly responded in his usual happy manner, thanking the speaker, and the members of the Columbus Horticultural Society, for their cordial welcome. This meeting recalled to his memory the first assembly of nurserymen and fruit-growers in the city of Columbus, many years ago, when the good old Quakers and others came up with apples in their pockets, and in their baskets, to compare their fruits, and to correct names, which had become so terribly tangled up; and out of which has grown the present Ohio Horticultural Society. It is pleasant to us again to meet here, at what may be called the birthplace of our Society. We still regard ourselves, as in some respect, missionaries to visit different portions of the State, to diffuse horticultural information. We are glad to meet the citizens of Columbus, and to receive benefit from intercourse with them, and we hope to be able to give them some information in return.

Col. G. S. Innis, President of the Columbus Horticultural Society, announced that an entertainment, or banquet, would be given on to-morrow evening, the 9th inst., at the State Agricultural Rooms, to which all the members of the Ohio State Horticultural Society are invited, and at which the members of the Columbus Horticultural Society are expected to be present.

The President, Dr. John A. Warder, then delivered the following

ANNUAL ADDRESS.

My Dear Friends: Having so often presented myself before you at these annual conferences, thanks to your unmerited partiality, there remains but little ground in our appropriate field of labor which has not already been occupied upon previous occasions. To rehearse the oft-told tale would be as irksome to you, as it must be tiresome and dull to him who now attempts again to address you.

Upon the present occasion, therefore, after offering the congratulations which naturally spring from the hearts of all who thus meet together in friendly concert, let us discuss, for mutual benefit, our year's experience; let us relate the results of our observations, our failures and successes. After devoutly rendering heart-felt thanks to Him from whom all blessings flow, your President will detain you but a few moments, to present some brief suggestions upon matters that have interested him, and which, he trusts, will not be devoid of interest also to you, his fellow-members.

On reassembling at this annual meeting, we must all miss him, who was ever punctual in attendance, and laden with materials to insure the success of this Society, which, to his devoted efforts during one-third of the current century, owes its prominence, its organization, indeed, its very inception; and to him also is due, in a great degree, its success, as a means of advancing the horticultural interests of our State.

We have lost our worthy Secretary, and it remains for you at this meeting to select one to occupy his post in the future. * * * Without attempting to direct your free votes in the selection of one of your fellow-members, to bear the burdens of the office, and to share the responsibilities of the Ad Interim Committee, allow him, who has for so many years served as the yoke-fellow of our lost friend, to ask you to make a careful selection of the candidates from whom to choose the successor of the late Secretary.

For this important office we need a man of liberal education, with broad views and a general knowledge of the various branches of horticulture that are brought under our consideration at these pleasant annual conferences, and one who will keep a watchful look-out upon everything that concerns the Society, and its interests during the year. We need a Secretary who shall maintain the credit which is now so generally accorded to our Society, among the extensive sisterhood of the State Horticultural societies—and this enviable distinction, though aided by the humblest member, is more dependent upon the Secretary than on any other person. The result is left with you; may your choice be wise!

You may be interested to know, that even before the death of Mr. Bateham, when on a visit to him at Painesville, it was your President's privilege to receive from him the secretarial portfolio and its contents, and thus set at rest his anxieties respecting the concerns of the Society, to which he had so long been devoted—a load was thus taken from him. The burdens of completing and editing the report were then assumed, and in this labor of love the co-operation of our Treasurer was secured, by appointing him to be the Acting-Secretary for the interim intervening before the annual election. Mr. Campbell's services have been invaluable; he has kindly read all the proofs, and mailed the reports to you; we trust you have received them. The responsibility for the selection and compilation of the papers must be placed upon the shoulders of your President; for any deficiencies that may be discovered, he craves your lenient judgment, and for the omission of at least one paper, read at the Canton meeting last December, he can only say that it had unaccountably disappeared from the portfolio above mentioned.

It will be remembered that at our September meeting, we resolved to erect a suitable monument over the remains of our late Secretary. The funds needed for this duty cannot be drawn from the money granted us by the State, but they must be private contributions; and as the committee having the matter in charge are desirous of completing their labors, we now call upon you, who feel able and willing, to aid them promptly. They will report progress at this meeting.

The crops of the past season have, in most cases, been very abundant, and though some of us may have found difficulty in disposing of the surplus at remunerating prices, we have had the satisfaction of thinking that the poor have been able to enjoy a share of the healthful products of our labors. We have been stimulated to seek new means of preserving them for future use, and to find new avenues for their distribution in distant and less-favored lands. The ad interim reports will give us more detailed statements of failures and successes.

You will be gratified to learn that renewed efforts have been made by local societies, and notably by our friends in Montgomery and Warren counties, to influence the managers of the Agricultural College, located near this city, to organize a Horticultural School. We, who have so long exerted ourselves in this pleasant pursuit, and who have, as a society, endeavored to supply the lack of education in this branch of knowledge; we, of all others, must realize the importance of systematic training and thorough instruction in Horticulture, and must naturally turn to this State Institution for so great a desideratum. You are urged to appoint a committee to act in this behalf.

HEDGING.

The intelligent legislation of our State has long since set us right upon the important question of inclosures, by declaring the common sense doctrine of common law, that fences should restrain the live stock, and no longer be required, at a great cost, to serve as *defences* all round our crops, to prevent their desolation by inroads of cattle. The law now requires every-one to restrain these animals, to fence them in, but no longer is it required of us to fence them out. No stock is allowed to run at large in the State of Ohio, and we may feel grateful for this stride in civilization. As horticulturists, we are deeply concerned in this matter; let us therefore continue to exert our influence in the creation and support of the public opinion, which is yet needed in some places to render the law effective.

Still, fences are required for the restraint of animals, and of these none are more attractive features in the landscape than the hedge; the live fences, like living trees, brighten the beauty of the rural landscape, an object dear to all Horticulturists, and, moreover, good hedges, as well as hedge-row trees, exert a great influence in checking the violence of the sweeping winds, and thus happily, to a considerable degree, they tend to meliorate the climate.

Some new ideas upon the management of hedges have recently been presented, and upon the strength of letters patent certain persons have united as the Dayton Hedge Company, who propose to construct hedges upon the plan of bending the stalks, and securing them one to another in a certain position. Claiming the validity of their patents, they forbid the use of these appliances by others. It is not worth our while to question their right to do so, nor the validity of these patents, which have been duly issued by the officers of the Government; but when an ingenious citizen discovers what he claims to be different appliances, for effecting a similar result in a better manner, it remains for the courts to determine, first, the validity of the patent, and also to decide whether the defendant's plan and practice be really an infringement. This question is soon to be adjudicated in the State of Indiana, where Mr. Jewell has invented an admirable method of plashing the hedge, and maintaining the inclined stems in their places by other means than those patented and used by the Dayton company, but which they claim is an infringement. The result will be interesting to all those who favor the plashing methods.

Cognate to this matter of hedging, is that of planting trees for ornament, shade, and shelter, especially along the highways, and it is very gratifying to find that our influence in favor of tree-planting is seconded by the people of the State, though in a limited degree. May it extend more widely! The railroad companies are beginning to consider the propriety of ornamenting the grounds about the stations, and thus rendering them more attractive, by plantations of trees, shrubs, and even flower-beds in the grass plats. This is a movement which is heartily recommended for your co-operation.

This leads us very naturally to the consideration of *Landscape gardening*, one of the highest branches of the art of horticulture, and which aids us in the embellishment of the surroundings of rural homes, as well as the ornamentation of the railway station, to the planting of the highways with umbrageous trees, to the village improvement associations, as well as to the creation of parks, and to the beautiful modern rural cemeteries that, in these latter times, have received so large a share of the meliorating influences of horticulture.

Each of these topics might be discussed separately, and with advantage to ourselves and to the community among which we reside, but at this time they are merely indicated as among the results that flow from the pursuits that have occupied our attention.

In all things human, we find the elements of evil commingling with the good—and so, even in horticulture; doubtless, for wise purposes of the Creator that are beyond the reach of our feeble powers, we are surrounded by interfering agencies. The extremes and irregularities of the weather are frequently very annoying, and even destructive. The attacks of blights and insects often detroy our hopes of success. May it not be that these casualties are intended, while teaching us dependence upon the Creator of all things, also to excite us to greater efforts to study the smallest, as well as the greatest of the works of the Almighty Ruler of the Universe! With this intent the microscopist has come to our assistance, and shown us the causes of the mischiefs which, to our unaided vision, had appeared so mysterious.

The entomologist has studied the habits of the insect intruders and destroyers of our crops, has made us familiar with their ways, and, with the aid of the combined lenses of these days, he has been enabled to pierce the mysteries of our minutest foes, which, by their numbers, have often produced the greatest havoc. Many of these forms of life occupy that wonderful border-land between the animal and vegetable kingdoms, so that we may sometimes be in doubt where to assign them their proper places.

You may remember the exposition so happily made at our last meeting, of the trouble affecting the Verbena plants, and which had been attributed to the invasion of fungous growths, and called the Verbena rust, but which the microscope had demonstrated as the work of minute animal organizations. The same indefatigable observer has now turned his attention to the study of the blight in apple and pear-trees, which, though fearfully destructive, has heretofore eluded our efforts to analyze its cause, and rendered all our hypotheses barren of results.

Professor Burrill has discovered the presence of *Bacteria* in the juices of infected trees, and he claims to have demonstrated that these minute organisms, when transferred by inoculation to healthy tissues, produce their death, by the destruction of the starch cells laid up for their support and growth. He also suggests that the dreaded *yellows* of the peach-tree may be caused by the same or similar *Bacteria.* His views have been presented to the highest scientific associations of our country, and are published to the world; they will, no doubt, be thoroughly tested by other observers, and we may hope, with confidence, that good will result to the suffering horticulturist from these investigations. Already one practicable observation has been made: since it was found that the poison, and indeed all access to the invasion of the Bacteria, was arrested by the delicate film of condensed cellular tissue constituting the thin membrane called the cuticle or outer layer. It was necessary to puncture this with the needle, before the organisms of the virus from an infected tree could be introduced into the healthy tissues of another.

Our disappointment of last year, caused by the unavoidable absence of our invited guest, Professor C. V. Riley, we are encouraged to hope, will be compensated by his presence among us at this meeting. A recent letter from the office of the United States Entomological Commissioner promises, that if possible, he will be here to aid in the solution of some puzzling questions; such as the invasion of other than the stone-seeded fruits by different species of the troublesome Curculio.

NEW FRUITS

Have been presented in every class within the past years in such numbers as to puzzle the novice in his selections, and to satisfy the experimenter seeking for the best. Some of these will, no doubt, be presented to your notice during our session by those who have made them a special study, and they serve to illustrate the energy and perseverance of our pomologists, as well as to furnish gratifying evidence of our progress in horticulture. Some persons venture to doubt this progress, claiming that the old varieties have not been excelled, but we must remember that superiority becomes more difficult in proportion to the vastly increased number of claimants to our favor.

New flowers and new plants, shrubs and trees, are also brought before us on every hand, and we have to learn that mere novelty is not always a guaranty for superiority. However, among them all, we can make selections that are undoubtedly evidence of progress, and we should encourage all attempts in this direction, always having a care to avoid the danger of being misled by the infatuated devotees to mere novelty.

The rule of the American Pomological Society is a safe one, and should be adhered to in all departments; we should never encourage the dissemination or even the *naming* of new fruits, unless they be superior to others of a similar character, occurring at the same season.

Our sister societies are all actively engaged in the good work, and many of them are about to hold their annual love-feasts. Michigan began the cycle on the present week at their literary center, Ann Arbor, where they are holding an excellent meeting.

On the 16th, our friends of Illinois invite us to their session, on the banks of the Mississippi, at Warsaw, which is as famous in its fruits as its olden namesake was for its battles.

The Hoosiers, our enterprising neighbors, meet December 21, to 23, at the classic town of Crawfordsville, and, as usual, they extend the right-hand of fellowship by inviting us to visit them and participate in their deliberations.

Our enterprising friends in Kansas meet next week, December 14, to 16, at Wyandotte, on their eastern border, where they hope to greet the members of the Missouri State Society, and those of the Missouri Valley Horticultural Society, for exchange of views and hospitalities.

The State Board of Agriculture is about to take a new departure, that should receive our active support. Under the guidance and promptness of their excellent Secretary, that body of distinguished men, who so freely devote their time and talent to the public, have been considering the means of doing their fellow-citizens still greater good than has heretofore been possible to effect by holding great annual Fairs. To this end they have been having consultations with leading agriculturists from other States, and the past week a large meeting has been held, with the same intent. One leading object has been the organization of a system of crop reports for the West, a great desideratum to us all; but, it is hoped that the workings of these Boards of Agriculture will also be more essentially directed to the investigating of special topics, and to experiment stations, from whence reliable data may be deduced, upon which to found reports, that will possess the greatest value to the people.

This is no new idea; for some of the first State Boards of Agriculture were organized upon a similar plan. The State Fairs held by the New York Board were considered so useful in their day, that they have been copied by Ohio and other States. They have been productive of good results, but it now becomes a serious question whether that kind of work should not be relegated to local organizations while the talents of the State Board can be better and more profitably occupied in a higher grade of work. Such a change might necessitate new legislation to provide for the selection of suitable men to conduct the experiments and to report upon the several specialties of *practical agriculture*, the earth-working and melioration of the soil and the production of food and forage crops; upon *cattle-breediny* and *handling*, which topic might well be divided between several specialists as necessity should indicate; particularly the veterinary branch. We should, of course, expect some members to devote themselves to the interests of horticulture, and its several sub-divisions. In such a body, a qualified expert would be needed to report upon the insects, injurious or beneficial to our crops and products, with the best means of counter-working them.

We should also have a reporter on the Botany of the State, to direct our attention to the betterment of our cultivated plants, to the introduction and eradication of weeds, and to the study and prevention of the numerous minuter forms of vegetable life, that have been found most seriously to injure us by greatly diminishing our production.

The care of the *food-fishes* and their propagation as an important branch of agriculture, though at present amply provided for by a separate commission, might very properly be assigned to the future Board of Agriculture.

Nor should the crying necessity for the diffusion of correct views respecting our forests be longer neglected, and the annual reports of a member familiar with this subject would be of incalculable advantage to the people of Ohio.

May we indeed expect such an important change in that organization? It is earnestly hoped that an early day may witness it.

NECROLOGY.

One by one the lights go out! Death claims its own, striking here and there remorselessly. Among the distinguished dead of our land, we have to record the demise of Robert Buist, Sen., at Philadelphia, July 15, of whom Mr. Meehan, Editor of the "Gardener's Monthly," says: "We are quite sure there are hundreds (of European gardeners) in this country who received their first American encouragement from Mr. Buist"; this is evidence of his well-known benevolence to the craft. A correspondent to the same journal writes: "His work is done, and well done. His mission was noble and useful while with us, and the great good he did will live long after you and I and the rest of this generation shall have passed away. * * * Hundreds of worthy, industrious, and intelligent horticulturists from over the Sea first found a home and employment at Mr. Buist's." This is believed to be from one of our own members, and is confirmatory of the well-known kind-heartedness of the man, who was foremost among the floriculturists of Philadelphia.

Though he was not a member of our Society, the name of Robert Buist must be familiar to us all, and his good deeds in and for horticulture are to be remembered with pleasure.

Prominent among the shining lights of horticulture that have gone out during the past year in Europe, stands the name of the amiable, laborious, and learned Professor Karl Koch, of the University at Berlin, Prussia. Of his busy pen, the splendid work, entitled *Dendrologie*, is his monument. Of his gentle manners, his kind and hearty hospitality to strangers, those who have had the good fortune to come into contact with this charming man, can most willingly testify. His long life among the trees of the forest and of the orchard had made him most familiar with their characters, and well fitted to become their biographer. He will long live in his works, especially in his *Dendrologie.*

To the memory of our late Secretary, the Society has already paid its heart-felt verbal tribute, at the meeting held in this place on the first day of September. Our grief was poignant, and was expressed in corresponding phrase, which was published in the report then going through the press. The healing touch of time has not yet effaced the sentiments of painful regret which then possesed us, especially when at this meeting we are brought again face to face with his vacant seat among us, and miss his cheering words of encouragement and instruction. Nor is our duty, nor the obligations to his memory yet discharged. We undertook to place a memorial upon his grave, and appointed a committee, from which you may expect a statement during the session. It is hoped that your liberality will enable those having the matter in hand, to report satisfactorily as to the means required.

E. E. BARNEY

Died at his residence in Dayton, Ohio, December, 1880. This valuable citizen, so long and so well known among us, has been called from his field of usefulness to the reward of his worthy deeds. The Christian gentleman, the scholar, the indefatigable laborer, whether in the church, the school or the work-shop, the useful citizen, and the liberal horticulturist, having nobly discharged the full measure of duties assigned him, has been taken from his field of usefulness on earth.

Elam E. Barney was born near the shores of Lake Ontario, in Jefferson county, New York, October 14, 1807. He struggled for an education, and then aided a large family of brothers and sisters in gaining a similar blessing.

In 1834 he came to Dayton, where he was engaged in teaching, and is said to have possessed a rare faculty of communicating information to his pupils.

In 1859 he began the establishment of the Car-works that have since grown into such extensive notoriety and high reputation.

His mind was of the suggestive order, and he often planned for others lines of action that he could not hope would ever benefit himself. This was happily illustrated by his efforts to introduce the Catalpa tree into extensive cultivation for the production of lumber, the value and the need for which he fully appreciated. Our members are all familiar with his liberal outlays in publishing information respecting this tree, and distributing this, with seeds, not only in our own country, but to distant portions of the globe; nor can they forget the earnestness of his address before this society at the Dayton meeting in 1878. Mr. Barney attached himself in early life to the Baptist Church, of which he was ever a zealous member, and conspicuous in works of benevolence and charity.

The local society of Montgomery county published the following notice of his demise, a well-deserved tribute to his memory:

DEATH OF MR. E. E. BARNEY.

Since our last meeting, another of our members has passed away. The associates of Mr. E. E. Barney in the various walks of life have so fully expressed their appreciation of his character, that it only remains for our society to record his services to the cause of horticulture. We shall miss his genial presence and kind counsels at our meetings. Alive to every public interest he was always ready to co-operate in efforts to adorn and beautify our city. When he took charge of the old Dayton Academy nearly fifty years ago, one of his first efforts was to enlist the larger boys in planting the yard with shade-trees. A Saturday excursion to the country in search of trees was inaugurated, and each boy was encouraged to select, plant and care for a tree to be called by his name. I well recollect the interest with which I watched my particular tree. No doubt good seed was thus sown, which bore fruit in after years, in the planting of many shade-trees. Flower-beds were also assigned to the girls, who were expected to plant and cultivate them. These were advanced ideas for fifty years ago!

But Mr. Barney's special work in connection with horticulture was the wide dissemination, through his instrumentality, of the Catalpa tree. Impressed with the rapid disappearance of our forests, and believing that the Catalpa, for its remarkable lasting qualities, would be most valuable for timber, he called attention to it with the enthusiasm and energy which characterized whatever he undertook. He wrote for the newspapers, published a pamphlet, and gratuitously distributed seed to every quarter of the globe. The result has been the planting of thousands of these trees, with benefit to a future generation that is incalculable. In this work Mr. Barney expended a large amount of money and valuable time, for which he deserves the thanks of every horticulturist.

Resolved, That this society expresses its deep sense of loss in the death of Mr. E. E. Barney, and its high appreciation of his disinterested services in the cause of horticulture.

Resolved, That our warm sympathy is extended to the family of the deceased in their great bereavement.

Ordered on the record and to constitute part of the minutes.

Of him it may truly be said: "The good that men do lives after them". Nor should it be forgotten.

OBITUARY.

Since the annual meeting we have lost another of our oldest members.

John R. Miller was born at Springfield, Ohio, May 30, 1811. In 1843 he established a nursery at the neighboring village of Enon, on the road connecting Springfield with Dayton, and then a noted high-way across our State. From this establishment many of the best orchards of the adjoining counties were planted, and their excellency was due to the care and judgment of the propagator.

In 1861 he established himself at the county seat, Springfield, and being an active member of the State Society, his grounds became a favorite resort for all who desired to plant orchards or to ornament their lawns and gardens.

In 1870, being desirous of freeing himself from care, he followed his children to Missouri, and finally settled with them at Sedalia, in 1872, where he continued to reside until his death, which occurred January 22, 1881, leaving his devoted wife, two daughters and their descendants to mourn the loss of a most devoted parent and husband, of whom it may truly be said: "None knew him but to love him; none named him but to praise." The Christian, gone to his rest.

And now, with thankful hearts, acknowledging the mercies and blessings that have been graciously extended to us by our benevolent Father, let us, who survive to bear the burdens, reverently ask, that His guidance may be over us as we proceed in the discharge of our duties during this pleasant reunion!

At the conclusion of the annual address, the following committees were announced by the Chair:

On Nominations—G. F. Newton, of Millersburg; W. W. Reed, of Canton; Wm. T. Kellar, of Miamiville; N. Julian, of Circleville; and G. H. Miller, of Norwich.

On Fruits and Vegetables—Geo. W. Trowbridge, of Glendale; Leo Weltz, of Wilmington; J. A. Matthias, of Enterprise; and G. F. Newton, of Millersburg.

Mr. Campbell presented a letter from S. M. Tracy, Secretary of the Mississippi Valley Horticultural Society, requesting the election of a Vice President from Ohio for that society, to be chosen by the Ohio State Horticultural Society. After some discussion, the subject was referred to the Committee on Nominations.

The following reports were then presented from the members of the ad interim committee:

AD INTERIM REPORT, BY G. H. MILLER. (FOR 1880.)

During the past season the fruit growers of South-eastern Ohio have been blessed with plentiful crops.

Strawberries, in some localities, were injured by a frost about the first of May, yet we had a fair crop. The varieties most injured were the Sharpless and Forest Rose. During this season, the Crescent has gained some laurels as a productive, profitable, market variety.

Raspberries were a good crop, and brought good prices. With the advent of the Gregg, raspberry-culture has received a new impetus. The culture of this berry has also been advanced by the introduction of the fruit evaporator, by means of which any surplus, and, in some cases, the entire crop has been dried, and in that condition has brought on the market during this season, an equivalent of 9 to 10 cents per quart for the green fruit.

Cherries and Plums were a fair crop; hundreds of bushels of plums, principally Damsons, were shipped to Pittsburg, Wheeling, and other points.

Pears, not much grown, owing to prevalence of blight.

Peaches were a good crop on all high or moderately elevated lands, and ripened earlier than usual; commencing with Alexander, June 28, and ending with Bilgen's Late October, which were frozen on the trees. Peaches, that were properly handled, brought good prices. Some (as Heath Cling and Gudgeon's Late), as high as $2.50 per bushel. Among the most profitable varieties grown here are Smock (on account of its great productiveness), Old Mixon Free, Crawford's Early, Gudgeon's Late, and Heath Cling. The very early varieties, Alexander, Early Beatrice, Hale's Early, and all of that class, are not reliable as market varieties, on account of being imperfect; more or less subject to rot, etc.

Apples were a very abundant crop, and brought low prices. More than the usual amount of bitter rot this season. Bentley's Sweet, R. I. Greening, and Westfield Seek-no-further, being almost entirely destroyed by it, in this locality. We were visited this year by the seventeen-year locusts. It is the verdict of most careful observers, that with the return of each periodical visit, they are growing "beautifully less" in numbers. Considerable damage was done by them in old orchards, and also in young plantations that were neglected by their owners. But many careful cultivators demonstrated the practicability of destroying, and frightening them off, and thus saved their young plantations from injury. The writer of this, by riding on horseback, and carrying in front of him a light pole that would sweep the tops of four rows of trees in nursery-rows, and thus going through the nursery when the locusts were active, and employing boys to destroy them in the evenings when they were more sluggish, succeeded in protecting his grounds almost entirely from injury. There is noticeable, in this section of the State, a gradual improvement in the beautifying of our homes, by surrounding them with trees, shrubs, and flowers.

[The following supplementary report was afterwards furnished by Mr. Miller, which will be found interesting, and the Secretary thought best to insert it immediately following the regular ad interim report for the year 1880.]

NOTES FROM JANUARY TO JULY, 1881.

Strawberries have produced well this season ; Crescent maintaining its reputation for productiveness; commencing to ripen with the earliest (or next to Crystal City,) and lasting almost as long as the latest (Windsor Chief or Glendale.) Cumberland Triumph has this season proved itself one of the most productive and profitable varieties; and contrary to public opinion, has proved that it can be sent a long distance to market: having been shipped from Barnesville, Ohio, to Chicago, arriving in fine order, and bringing as high as $9.60 per bushel. Among the other comparatively new varieties for this section, that promise well, we might name Miner's Prolific (very prolific; large, but not very firm.) Captain Jack (very productive, medium size, bright scarlet color, and good shipping qualities.) Our old standard varieties, such as Wilson, Chas. Downing, Kentucky, etc., behaved about as usual this year. Among other varieties desirable for the amateur grower, and perhaps in some localities for market, we would mention the Sharpless and Photo. One lesson in the berry business has been especially emphasised this season. Strawberries, (or any fruit,) to be profitable must be well grown, and placed on the market in fine order. When strawberries that were properly grown, and kept clean by proper mulching, and well handled, were selling in Chicago market at $5.50 to $6.50 per bushel, berries that were sanded and not well cared for, were begging for buyers at $1.50 to $2.00 per bushel.

Raspberries were a medium crop; in some localities the crop was cut short by the dry weather. Most of the new plantations are of the Gregg variety. While we consider the Gregg the "king of the black-caps," yet we doubt the wisdom of confining our plantings almost entirely to this one variety, to the neglect of earlier varieties, such as Doolittle. Of the red varieties for market, the Reliance is much esteemed, although but few of that class are grown.

Apples and Peaches promise only a light crop. Owing to the very severe cold of last winter, some varieties of ornamental trees, which we have found entirely hardy heretofore, were injured. Among these we might name Menzies' Spruce (Abies Menziesii) very badly browned, but at this date (July 19) almost entirely recovered. Cupressus Lawsoniana erecta viridis, almost destroyed. Several varieties of the Yew (Taxus) badly injured. Nordman's Silver Fir (Picea Nordmaniana), Glaucous Fir (P. Nobilis), Cephalonian Fir (P. Cephalonica), and Oriental Spruce (A. Orientalis) all more or less browned but not permanently injured. Handsworth's and Variegated Box badly injured, although the common Tree Box escaped with only a slight scortching. Rhododendrous unprotected from winter sun, badly injured, those on north side of building safe. Peach-trees were somewhat injured by the winter, and in some localities (low) grape-vines were killed to the ground, but, where the vines escaped the winter, we now have a fine show for a crop of grapes.

AD INTERIM REPORT, BY J. J. HARRISON, of Painesville, Ohio. (FOR 1880.)

Mr. President and Members of the Ohio State Horticultural Society:

In making my annual report, I must premise by stating that my opportunities for observation, during the past year, have been quite limited; not having attended any of the meetings of the other State societies, or even any of the county societies of our own State, so my notes will be confined mainly to the fruit crops of Lake, and adjoining counties.

The autumn of 1879 was a very favorable one for maturing both the wood and fruit-buds, so that they went into winter in exceptionally fine, ripe condition, and, as we experienced no very severe winter weather,

FRUITS OF MOST SORTS

Were quite abundant, notwithstanding we had the severest hail-storm that ever visited this section, on the eleventh of May. The storm was so severe that thousands of lights of glass were broken, in and about Painesville. This storm was more or less damaging to fruits, and especially so to the peach. But the apple escaped with little or no injury, and the result was one of the largest crops that was ever gathered (or rather was not gathered ;) as the price for picked fruit was so very low that but a small portion was gathered, and these mainly for home use. The most of it was made into cider, apple-jelly and butter, or shipped to Baltimore to be worked up in the drying-houses of that city, and tens of thousands of bushels rotted on the ground, or were fed to stock. We greatly need, in years of abundance, some of the

MODERN DRYING ESTABLISHMENTS

Located in our midst, to prevent this great waste of choice fruit. A few parties, possessed of suitable cellars, for keeping apples in fine condition, have their crops stored, where they will remain until the glut is over, when, as usual, they will probably realize from two to three times as much as their less thrifty neighbors have done.

THE PEACH CROP

Was pretty good, considering the injury by the hail and the immense crops of the two preceding years, and generally sold at remunerative prices. Among the sorts that have been some time before the public, and deservedly growing in favor, are Smock's Free and Salway, both late varieties. The Salway is about a week later than Smock, of excellent quality, and is becoming very popular to ship to southern markets; being firm and not over juicy, and yet of excellent quality and remarkably sweet, considering the lateness of its ripening. It sold, this season, at from $2.50 to $3.00 per bushel. Another large, yellow peach is being tested here, a chance seedling, produced by Mr. R. Marshall, of this place, and called Marshall's Late. This new candidate for public favor ripens about midway between the Smock and Salway. It is a large, fine-appearing, yellow peach, of fair quality, and promises to be an excellent shipping variety. There are some new early varieties that had their origin in this county, and of which considerable has been said, and to which I will add this year's observations. The Davidson's Early, thought to be the most promising of these, has not sustained the reputation previously accorded to it. From some cause, probably owing to the peculiarity of the season, the twigs, both of the original tree and all its progeny, have been very seriously affected by mildew, and the fruit rotted badly. Scarcely a respectable sample matured on the original tree, the only one that I have knowledge of bearing fruit this season. The twig and leaf mildew was a marked feature of this variety in the nursery rows. The fruit, as I have seen it previous to this year, has been so nearly like the Early Alexander, that, when placed together, good judges could discover no distinguishing points. But this year, owing to the Davidson's Early decaying before maturing, there was no opportunity for comparison. The Alexander was very fine, with this exception: Swarms of bees were continually feeding upon the fruit, making it unpleasant, and even dangerous to gather it. And they were almost as bad on Early Beatrice, which commences to ripen a week or so later. In fact, bees were extremely troublesome with us all the season through, except on the very latest varieties. This suggests the thought, whether or no, it is right for large colonies of bees to be kept, whose owners never spend a dime to provide them with natural food, thus forcing them to prey upon their neighbors' orchards, gardens and vineyards.

Another early peach, originated in Willoughby, this county, and called Allen's Early, is described as beautiful in color, of good size and quality, remarkable for its extreme earliness. The first specimen ripened in the summer of 1878, July 6th, and in the summer of 1880, July 1st, from twenty-three to twenty-five days earlier than Hale's Early. Tree hardy, a splendid grower and prolific bearer. This variety may prove earlier than Alexander, but we have our doubts; as from our observation of the two, there is no noticeable difference. The first Alexander gathered by us this year was on July 2d, and it might have been the 1st, or possibly earlier, had we visited the tree sooner. Alexander is somewhat the larger of the two.

The three varieties originated by Mr. Rivers, of England, namely, Early Rivers, Early Beatrice and Early Louise, are all growing in public favor, as they are all decided freestones, which cannot be said of any of the very early varieties of American origin, all being inclined to adhere more or less to the pit. We have not seen all of the new American varieties in bearing that have been placed on the market; but doubt if any are very much superior to Alexander.

PEARS

Bore a fair crop, and brought moderate prices. Trees almost entirely exempt from fire-blight, and as the winter preceding was mild, the suggestion is made that possibly very severe freezing may prepare the way for the disease. Although it will require further observation to establish it as a fact.

THE PLUM CROP

Was a moderate one, but some varieties, where the curculio were destroyed, or kept in check, produced fine crops. This was especially the case with the Lombard ; being hardy and very productive, it is one of the best to plant, especially on light soils; and although neither the largest or finest of the plum family, it occupies a position among plums similar to that of the Concord among grapes.

CHERRIES,

Of which there was a fair supply, were as usual quite badly stung by the curculio, and it appears before we can ever hope to have fair, handsome fruits of the plum and cherry again, there must be a united effort to at least decimate the ranks of the little Turk.

GRAPES

Did finely, producing large crops, except in the tenderer sorts possessing foreign blood, which were much more affected with mildew than in the previous season. The main cause of this we judge to be the greater amount of rain-fall during the growing season.

The Brighton fully sustained its well-earned reputation, both as to productiveness and the quality of its fruit. I consider Worden's Seedling one of the very best new black grapes, that possess a Concord constitution. The Champion, a healthy grower and early to ripen, is very inferior in quality.

Having been privileged to eat of the fruit of some of the new sorts not yet generally disseminated, I will give my impressions of a few of them, although it may differ widely from that of better judges.

The Lady Washington, raised by Mr. Rickets, is, to my taste, the best hardy, white grape that it has ever been my good fortune to taste; and if the vine had the parentage of the Concord with its constitution, it would be safe to recommend it for almost universal planting; but as it has undoubtedly an admixture of foreign blood in its veins, it will very likely disappoint in some localities.

The Prentiss, another fine white grape, being introduced by Mr. Hubbard, of Fredonia, is of good quality, but, to my taste, not equal to a well-ripened Rebecca. But if the vine sustains elsewhere, the reputation it has obtained where it originated, for health and productiveness, it will prove a great acquisition to our list of white grapes.

"The Niagara," another white grape of excellent quality, impresses one with the idea that, like its great namesake, it is destined to make itself heard far and wide.

The Pocklington is another large white grape of the Concord type, and, like its prototype, rather coarse and decidedly more pulpy; but will commend itself to those who prefer size and quantity, and in favorable localities it may prove itself quite valuable, as the pulpiness may almost disappear.

Moore's Early, a large black grape of the Concord family, but some two or three weeks earlier, is worthy of extended trial, and we predict that it is destined to drive the almost worthless Ives Seedling from our early markets, which color before the Concord, and are sold in the markets as Concords, their wretched quality breaking the market, so that by the time genuine Concords do make their appearance the people have become disgusted, and but little demand is found for them even at the depreciated price.

RASPBERRIES

Were a fair crop, both in reds and blacks. Of the red varieties, the Turner or Southern Thornless, holds its own for health, hardiness and productiveness. The Thwack is also hardy and productive, and the fruit, though scarcely first quality, possesses unsurpassed shipping qualities. Of the newer sorts, the Reliance and Cuthbert, or Queen of the Market, are rapidly gaining confidence wherever they have been tested. In blacks, the Gregg is the largest and most prolific, and has entirely eclipsed that old stand-by, the Mammoth Cluster. A field of well-cultivated Greggs, with their immense load of ripening and ripened fruit, is a sight to behold.

BLACKBERRIES

Were tolerably plenty, although we do not see so many of Wilson's Early, Kittatinny, and Lawton, as formerly, owing to the disease known as rust, making plantations so uncertain that the extra price in market over wild ones has not been a sufficient inducement to tempt fruit-growers to invest their money in that direction. These three varieties stand unrivaled for size, beauty and flavor; but, in some localities and seasons, they lack hardiness. The Snyder possesses what is lacking with them in that direction, and is immensely productive; but it lacks the magnificent size of the former, and is scarcely as good in quality; and yet we consider it a great acquisition where they are too tender to stand the winter, as it will produce enormous crops, and in the absence of anything better, will bring a remunerative price in the market.

THE CURRANT CROP

Was a good one, and brought fair prices. This we consider one of the most healthful of all our summer fruits, and a good row should be found in every garden. Its chief enemy is the currant-worm, which is easily kept in check by the prompt use of White Hellebore. We use one part Hellebore to twenty or thirty of air-slacked quick lime thoroughly mixed, and dust on the bushes when the dew is on, on the first appearance of the worm.

STRAWBERRIES

Were an abundant crop, but owing to absence during their time of ripening, I will be obliged to defer reporting on varieties, until next season.

REPORT FOR SOUTH-WESTERN OHIO, BY GEO. W. TROWBRIDGE, OF GLENDALE, O.

Mr. President and Gentlemen of the Ohio State Horticultural Society:

The year 1880, now about closing, has been, upon the whole, a very propitious and fruitful one. The remarkably warm and open winter, following our last annual meeting, was favorable to the extent of saving the most tender of the fruit-buds from winter-killing. They also escaped the spring frosts, although peach-trees were in bloom April 6, and on the succeeding two mornings (7th and 8th) the mercury sank to 29°, and ice was visible. By some reason not satisfactorily accounted for to my mind, the cherry crop was almost a failure, the hardy Early May proving as much so as the sweet and more tender ones. The bloom came out apparently healthy and strong, but dropped without setting fruit. I have thought it might have resulted from defective fertilization brought about by heavy storms of rain and wind, the latter of which especially prevailed at that time. It might be of interest and profit to have a free interchange of opinions upon this point at this meeting.

Strawberries, the fruit first to welcome us in the spring, with its tempting and crimson cheek, was a reasonably good crop; some of the early blooms being cut off by the frosts, on the mornings previously mentioned. Wilson's Albany, Charles Downing and Kentucky are the favorite and leading varieties cultivated in the vicinity of and for the Cincinnati market. Prices were not, upon the whole, very remunerative and satisfactory to the average cultivator. Sharpless, which promises so well, both as to vigor of plant, size, and quality of fruit, did not blossom out well, and I rather suspect may be quite tender in the bud, more damage being done by the frost than was apparent just at the time.

Cherries were nearly a failure, as previously stated; the crop certainly not being over one-fourth after the birds had their share. It is rather vexatious to sit quietly and see the constant stream of robins, woodpeckers, and others, of the winged-tribe, carrying away that you have by years of watchfulness and toil produced, in order to relish and satisfy the cravings of the inner man in the shape of good pies and puddings. To one who is familiar with the use of a gun, the restraining influence to prevent a free use of powder and shot in mitigation of the difficulty, must be somewhat of the character of the Patriarch Job.

Raspberries were a good crop, both of the red and black species. Some of the most tender of the former were killed, or so injured in the canes as to produce but little fruit. Miami and Mammoth Cluster are the varieties of Black Cap generally cultivated, though the Gregg is being rapidly introduced, and in a few years will in all probability supersede the others. Kirtland (Highland Hardy) and Turner are the varieties of red generally cultivated, the latter proving perfectly hardy and prolific, though the berry is rather soft for shipment any great distance. Cuthbert is being introduced, and has vigor of growth, size, quality, and firmness of berry to recommend it. If the canes should prove hardy like Turner, there is a bright future for this welcome new fruit, unless the lateness of ripening should somewhat militate against it.

Currants and Gooseberries were only a very moderate crop. Some plantations have been wholly destroyed by the worm; others very much weakened by neglect to commence the destruction of the pest until considerable inroad had been already made upon the foliage. They commence their work first upon the underside next to the ground. If prompt action be then taken by dusting with powdered White Hellebore, they can be quickly and easily checked, so that but little permanent damage is done.

Blackberries were a magnificent and abundant crop; best, in fact, for several years. Seasonable rains about maturing time, and no injury to canes by the previous winter favored this much-prized fruit. There was a noted absence of the usual amount of the large and fine cultivated berries which came to market a few years since. Kittatinny has behaved so badly, by reason of rust, as to be almost entirely discarded. Snyder is rising in popular favor; the canes being perfectly hardy as to damage by winter, and, as yet, showing no signs of rust. Although lacking of size as to berry, it is a prodigious bearer, good in quality, and will produce as many or more quarts to the acre, as the much-prized Kittatinny. I have fruited for two seasons past Taylor's Prolific, with good satisfaction as to prolificness and quality of fruit. Should the cane, after thorough trial, prove to be perfectly hardy, I should deem it quite an acquisition.

Plums are becoming each year more and more scarce, by reason of damage to fruit by Curculio, and destruction of trees by black knot. This disease is confined principally to the Damson variety, and whole orchards in South-western Ohio are swept out of existence which a few years since supplied the Cincinnati market so bountifully, and proved quite a source of profit to the owners; consequently, what few were brought to market, sold quickly and at remunerative prices.

Peaches are not much cultivated for market in this corner of our State, but wherever there were healthy and vigorous trees of proper age, on high, rolling land, the crop was very good; much better than for several years previous. The great enemies to successful peach culture in this locality, are the sudden and excessive changes of temperature in the winter season, which not only destroys the fruit-buds, but so injures the vitality of young trees that they never fully recover their vigor. And then the borer (*Ægeria Exitiosa*) working at the base of the young tree produces like results also. The latter is within our power to remedy if we are only vigilant and industrious. The former is beyond human knowledge or physical ability, therefore we must patiently and humbly submit. What is most earnestly desired in connection with this fruit, is the production or introduction of a variety or species which possessse a wood-growth as dense and heavy as the plum. He who first succeeds will prove a benefactor to the American people, and leave behind him a lasting name, which all future horticulturists will delight to mention with reverence and honor. The supplies came chiefly from the hills overlooking the Ohio River, in the vicinity of Madison, Indiana, which has proven to be admirably adapted to the successful cultivation of this fruit. The varieties marketed in the greatest abundance still continue to be Old Mixon Free and Smock Free.

Pears were, upon the whole, not an abundant crop, but sufficiently so for a successful peach season. Growers of Bartlett especially complained of the slow sale and low prices realized, rendering the season's business scarcely remunerative. There is no reason, however, to be discouraged, as the same hindrance may not again prevail for several years. That variety continues to be the standard and successful market variety for profit. Duchess D'Angouleme on the quince-stock, is now rising in popular estimation as a successful market pear, to come in about the close of the peach season, in the fall. It is proving to be a good bearer, hardy and very free from blight, and for this reason is able to bear good cultivation, which is necessary to produce large and good fruit upon that stock.

Apples. This was the proper year for a heavy set of well-developed fruit-buds, and being uninjured by frost, the crop was abundant, but owing to insect depredations, the fruit is despoiled, late as well as early varieties, before fully matured and ready for picking. Some who plucked their winter apples quite early, find they are not keeping well, and will soon be without, although their orchards are large enough to not only give an abundant supply for their own family use the year through, but would, in addition, afford considerable revenue, if the insect enemies could only be economically and successfully checked. This is a lamentable fact, and should call forth our highest and most vigorous mental and physical powers to devise some means or remedy to meet the case, for I know, by close observation of men engaged in fruit culture, there is nothing so disheartening and tending to beget a loss of interest in our societies and pleasant horticultural gatherings, than this one fact. Cincinnati market is now being mainly supplied from Michigan, Northern Ohio and Western New York, with King of Tompkins County, Rhode Island Greening, Baldwin and one or two other varieties. Those holding the lead here for market are: Prince's Early Harvest and Benoni, for Summer; Maiden Blush, Rambo and Yellow Belleflower, for fall and early winter; followed by Rome Beauty, Smith's Cider, Wine Sap and White Pippin, for winter. Ben Davis is rising in favor, and being considerably planted, owing to its early and abundant bearing, handsome appearance and good keeping qualities.

Quinces were scarce, owing to the destruction of trees going on by the borer and blight. Not many years ago the Cincinnati market was abundantly supplied, and I might say over-stocked, in a good bearing season.

I visited the

STRAWBERRY PLANTATIONS

Of two growers, during the season, each of whom had out four or five acres. In one case I was shown a bed of Wilson's, containing not quite an acre, from which had been marketed 84 bushels of berries, at an average price of three dollars per bushel, and this was the second crop, being much better than the previous one, owing to the failure of getting a good stand of plants after setting out in the spring of 1878. No manure was used. His plan was to mulch with the refuse of sorghum stalks after the juice was pressed out.

On the first Wednesday in November, in company with our worthy President and Vice President, I had the pleasure of meeting with the Lucas County Horticultural Society, near Waterville, at the residence of W. W. Farnsworth, where we were kindly and hospitably received. The day was exceedingly unpropitious, therefore the attendance was quite light, as the members are widely scattered, and could not be expected to ride hours through mud and cold rain, with horses ailing from the prevailing epizootic. There was, however, sufficient evidence presented to our minds that they have an intelligent and active membership, who are earnest in their efforts to promote and elevate the horticultural standard, and co-operate with this society by all means reasonably within their power.

Such is a brief review of my observations and acts as a member of your Ad Interim Committee for the year now ending. Although I may have noted and done nothing which will add to your interest or stock of valuable information, I yet trust you will all feel I have, at least, endeavored to do my duty so far as my ability, time, and circumstances with which I am surrounded, have allowed.

AD INTERIM REPORT, BY N. OHMER, OF DAYTON, OHIO.

Mr. President:

I commenced my report to this society last year, by saying that the year 1879 had not been a particularly fruitful year, nor profitable to fruit-growers. I am now able to report, at this meeting, quite the contrary. It seemed that everything boomed in 1880; the horticultural interests were not an exception, as to fruit, beginning with the strawberry and ending with the apple; there seemed to be no end to the supply. Fruit was not only abundant, but sold at remunerative prices, unless the apple may be excepted.

STRAWBERRIES

Were a good crop. Of the new varieties, I was particularly well pleased with the Sharpless, Crescent and Glendale. The Champion is a favorite of mine. It is not a first-class berry, but is a wonderfully productive one; like the Crescent it is a valuable berry for a near market, but not a good shipper. Plenty as were strawberries, they sold at good prices.

RASPBERRIES

Did admirably well with me; the crop was large, of excellent quality, and sold at good prices. I am particularly well pleased with the Reliance, which is not new, but certainly a valuable fruit that ought to be better known. It is a good grower, smooth cane, very hardy, excellent bearer, of fair to good quality, berry very large, dark red (not purple,) and sells well in market.

The Thwack continues to do well with me, and I consider it a good market or shipping red berry.

The Turner is now well known to be an excellent variety for the table, or a near market. The Cuthbert fruited some with me this season, but not sufficient to allow me to give an intelligent report of its merits; will no doubt be able to do so another year.

Of the black varieties, the Gregg more than sustained its good reputation. I had a splendid lot of berries, near eight hundred bushels, that were sold at good prices. It is certainly the black raspberry for the main crop.

BLACKBERRIES

I can say but little about; as the yellow rust on the plants drove me out of the business. I think, however, judging from the light crop in the market, and the high price for which I sold the few I had, that I am not the only one that was driven out of the business. The Snyder variety seems to be proof against cold and rust, and will eventually become the blackberry for market.

PEARS

Were an abundant crop this year. They were so plenty. and so many varieties coming in at the same time, that many were not gathered, but allowed to rot upon the ground; the market being glutted with them, and none but the best would sell at any price. I had about eight hundred bushels of Bartletts—sold a few extra fine ones at $1.00 per bushel, but the bulk of them were sold at from forty to sixty cents. Of course these were low prices, but it made money nevertheless. I find there is more money in varieties that come in later in the season, such as Duchess, Beurre D'Anjou and Lawrence. Of these I get an annual crop that always sells at good prices. Would recommend the Duchess and Beurre D'Anjou as dwarfs. As an evidence that we are comparatively free from pear-blight, (the great drawback to pear growing) I would say that of near 4,000 trees I have, I don't believe I lost one tree from blight this year, and very few limbs touched with it.

PEACHES.

I am not a peach-grower; that is, I am not a success at peach-growing. I have planted plenty of peach-trees at different times; have now some six hundred, but never made any money growing them.

APPLES.

Of this king of all fruits, there was a wonderful crop this year throughout the entire country where apples are grown. Go where you would, apple-trees were loaded with magnificent fruit. The question was, what shall we do with them? Many were fed to stock, or allowed to rot upon the ground. They were too cheap in many places to hand-pick them; in fact, you could scarcely give them away, unless you would promise to deliver them, and be sure there were no specks on them. I disposed of some of mine at from thirty to fifty cents per bushel. The bulk of them were made into cider; one hundred or more barrels sold at from ten to twelve and one-half cents per gallon, by the barrel. This paid me pretty well. I hand-picked near 300 bushels, put them in my fruit-house on the floor, intending to barrel the best of them late in November. My Rambos and many others were shaken from the trees and piled in large piles in the orchard without protection, intending to make cider of them. The extreme cold weather came unexpectedly, and caught my apples as above described, and the result is, those in the fruit-house, mostly Rome Beauty, were ruined by the cold, except it be for cider, and those in piles in the orchard are but little damaged. The result is a lesson for me; I learned much from it. I will hereafter rather trust them in piles in the orchard than house them up, unless they are in barrels, and where it will not freeze eleven degrees below zero. I intend making cider of the frozen ones, if they ever thaw out, and may come out all right in the end.

I was invited to, and attended Horticultural meetings during the summer, of the Warren county, Portage county, Stark county and Lucas county societies, and am pleased to report these societies as wonderfully successful. The attendance and display of fruit and flowers at the three first-named meetings was very large indeed. As our worthy, now deceased, Secretary Mr. M. B. Bateham, who was present at these meetings, gave you an excellent account of them in his last report recently issued, I will not speak of them further than to certify to the correctness of his report, and to compliment the members of said societies for their earnestness, and advanced ideas in the interest of Horticulture. If you will show me a community who sustains a society such as the above named, I will show you a community where a high degree of intelligence and good taste prevails, and where neighbors are neighborly. In other words, a desirable place to live in, which is the highest compliment I can give, and wish there were more such in the State.

Some discussion followed Mr. Ohmer's report, occasioned by his statement of remarkable exemption from blight.

Mr. Campbell inquired if blight was not more prevalent after severe winters.

Mr. Ohmer thought not; did not believe that the winter had any influence in producing pear-blight.

Mr. Harrison thought an increase of blight did follow severe winters, and was disposed to regard extreme cold as aggravating, if not producing this pest of the fruit-grower.

The discussion here wandered somewhat from the subject; and Mr. Innis reported that a Belle Lucrative pear-tree had been destroyed by blight where the ground about it was cultivated; while others not cultivated, remained healthy. He had a lot of 50 young pear-trees all blighted. He had also a word to say about the birds, and did not agree with those horticultural writers who praise them and advocate their care and protection.

Mr. Trowbridge did not think the winters had anything to do with the causes of blight in the pear.

Mr. Weltz reported large losses of pear-trees by blight; more this year than ever before. Flemish Beauty, Belle Lucrative, and many others. The ground about his trees was cultivated in strawberries. Recommended the Tyson pear as less liable to blight than many others.

Mr. Julian has had more blight than usual the past season. Bartletts nearly all gone. Winter Nelis does not blight; but the leaves fall prematurely and fruit fails to ripen. Probably from injury by winter.

Mr. Pierce has had trouble with some varieties of pears shedding their leaves and failing to ripen their fruit. Sheldon and Winter Nelis were varieties mentioned, planted in sod. He ploughed up the sod and planted corn between the trees, and had both varieties very fine afterward.

Mr. Campbell had observed that the blight on his place was always worse in seasons following very severe winters. Had found, among a large number of varieties planted, Seckel, Tyson, Winter Nelis, Kirtland, Buffum, and Beurre Giffard, the least liable to suffer from blight.

Dr. Warder said the Chair had indulged the members in this discussion and report upon pears and pear-blight, because it was an interesting, if never-ending subject. But many of us have for thirty years heard similar discussions and experiences, and were obliged to regard them as to some extent profitless. He referred to the recent discoveries of Prof. T. J. Burrill, of Champaign, Illinois, as promising an advancement in knowledge upon this subject, through careful scientific investigation.

AD INTERIM REPORT, BY GEO. W. CAMPBELL, DELAWARE, OHIO. (FOR 1880.)

The year just passed has been one of unusual prosperity, both for the agriculturist and the horticulturist, in Central Ohio; and I think, also, throughout the State.

The winter of 1879-80 was unusually mild; but was marked by sharp and sudden changes, which proved more injurious to roses and half-hardy shrubbery than other seasons which have been much colder, but more equable.

In my portion of the State, fruits of nearly all kinds have been abundant and good, and prices generally satisfactory.

THE APPLE CROP

Has been very abundant, it being what is called "the bearing year," and the fruit, so far as I have observed, has been smoother and more free from insect attacks, than in former years; and some kinds, notably the Yellow Belleflower, has been much finer in appearance and better in quality, than for a long time past. I have noticed with much pleasure and interest that a large portion of the surplus crop of apples in the Eastern States has been shipped to foreign markets, and found ready sale and profitable returns.

PEARS

Are not largely grown in my immediate vicinity; and I regret to say, the blight has been so serious in my own experience, and in that of others within my knowledge, as to render the cultivation of this admirable fruit very discouraging. A record of the performance of some of the most popular kinds which I have grown within the past twenty years may have some value; the following have all blighted to death: Madeleine, Bloodgood, Osband's Summer, Stevens' Genesee, Glout Morceau, Doyenne Boussock, Duchess d'Angouleme, Beurre d'Aremberg, Beurre d'Anjou, Clapp's Favorite, Onondaga, Fondante d'Automne, Beurre Diel, Flemish Beauty; some of them renewed, and died a second time.

The following list have blighted more or less, but have not entirely failed, and still bear fruit nearly every year: Tyson, Beurre Giffard, Bartlett, Kirtland, Seckel, Buffum. Some Bartlett trees have failed entirely from blight, others only partially injured.

Two varieties only have entirely escaped, Lawrence and Winter Nelis; the latter bearing regular crops nearly every year, and one of the best and most reliable of the late ripening varieties. The Lawrence, contrary to its reputed character, has seemed to be a very slow grower, and very late in coming into bearing, having borne very sparingly, though always healthy. I was much interested in a paper read by Prof. T. J. Burrill, of Illinois, at the meeting of the Mississippi Valley Horticultural Society at St. Louis, last September, upon pear-blight. In a series of interesting experiments, he found the disease could be transmitted from affected trees to healthy ones by a process of inoculation with portions of the diseased bark, or the exudations from the diseased limbs. He also found multitudes of microscopic living organisms, called *Bacteria* or *Vibriones*, in the degraded sap or juices of the blighted trees, which he regarded as the cause of blight. I experimented a little by putting bits of the diseased bark from blighted trees in a phial of water. The water soon acquired the peculiar odor so familiar to all who have pruned blighted pear-trees, and upon examining it by a microscope of high power, innumerable quantities of the *Bacteria*, described by Prof. Burrill, were found. I then took some bark from entirely healthy limbs, and upon examination of the water in which it had stood for some days, found the Bacteria in this also, but in very slight quantity. It was also an interesting fact, stated by Prof. Burrill, that the disease from twig-blighted apple-trees could be communicated to pear-trees by his mode of inoculation, and then became veritable pear-blight. And that the "twig blight" in the apple could be produced by inoculation from blighted pear-trees. The *Bacteria*, I understood, were found both in the pear and the apple, showing the diseases to be analogous, if not identical.

PEACHES

Have been so uncertain for many years, that very few of the finer kinds are cultivated. Where there were trees, they bore generally good crops. Amsden fruited for me the first time, upon a young tree. The first fully-ripened specimen was picked July 12, and all were ripe July 16. I found it a handsomely colored, medium sized peach, with light-green flesh of good quality; partially clinging to the stone. A seedling variety, which fruited for the first time in a neighbor's garden, the past season, was ripe July 15, and seemed to me very promising. Rather larger, and lighter-colored than the Amsden; with also lighter-colored flesh, and rather better flavor, clinging much less to the stone. I procured a few buds, and shall test it, believing it will prove worthy of cultivation.

Upon plums, cherries, and quinces, I have nothing of interest or value to report; all being uncertain, and not largely planted in my locality.

STRAWBERRIES.

Among the large number of new, handsome and promising varieties of recent introduction, I have personally grown but few. I find myself less inclined, as years go by, to change old friends for new ones, unless the old prove unworthy, or the new have superior claims for excellence. Triumph of Cumberland still retains favor as a large, handsome, and good flavored berry for home use and near market; and it seems to succeed well over a large extent of country, and in varied soils and situations.

Sharpless proves to be a very strong-growing, healthy, and productive variety; the berries very large, moderately firm, of bright, deep color, and good flavor. The berries are many of them coxcomb-shaped and irregular in form, which seems to me the greatest objection to this variety.

Glendale has also been quite satisfactory in vigor of growth, health, and productiveness; the vine showing great hardiness, resisting alike the severity of winter, and the heat and drouth of summer. It is of good size quite uniform in shape, of good color and firm texture. Continues long in bearing; but is of rather indifferent quality. Upon the whole a promising market berry, and valuable as prolonging the strawberry season.

Among the new varieties which I have seen on exhibition the past season, Duncan, Miner's Prolific, Springdale, Champion, Harvey Davis, Warren, and Longfellow, were of very handsome appearance and fine flavor, and seemed certainly worthy of trial. A good deal has been said, both for and against Crescent seedling. There is no doubt about its vigor and great productiveness; and as I have seen it in various places, find it of fair flavor and worthy of cultivation by all who wish to raise strawberries *without* cultivation. It has been justly called the "Lazy Man's Strawberry," for it will take care of itself probably better than any other. Forest Rose, although a beautiful and good berry, has proven defective in plant and foliage, and, with me, has entirely "run out." I regret this, for I had a pride in it as an Ohio production, and hoped great things from its first favorable impression.

RASPBERRIES.

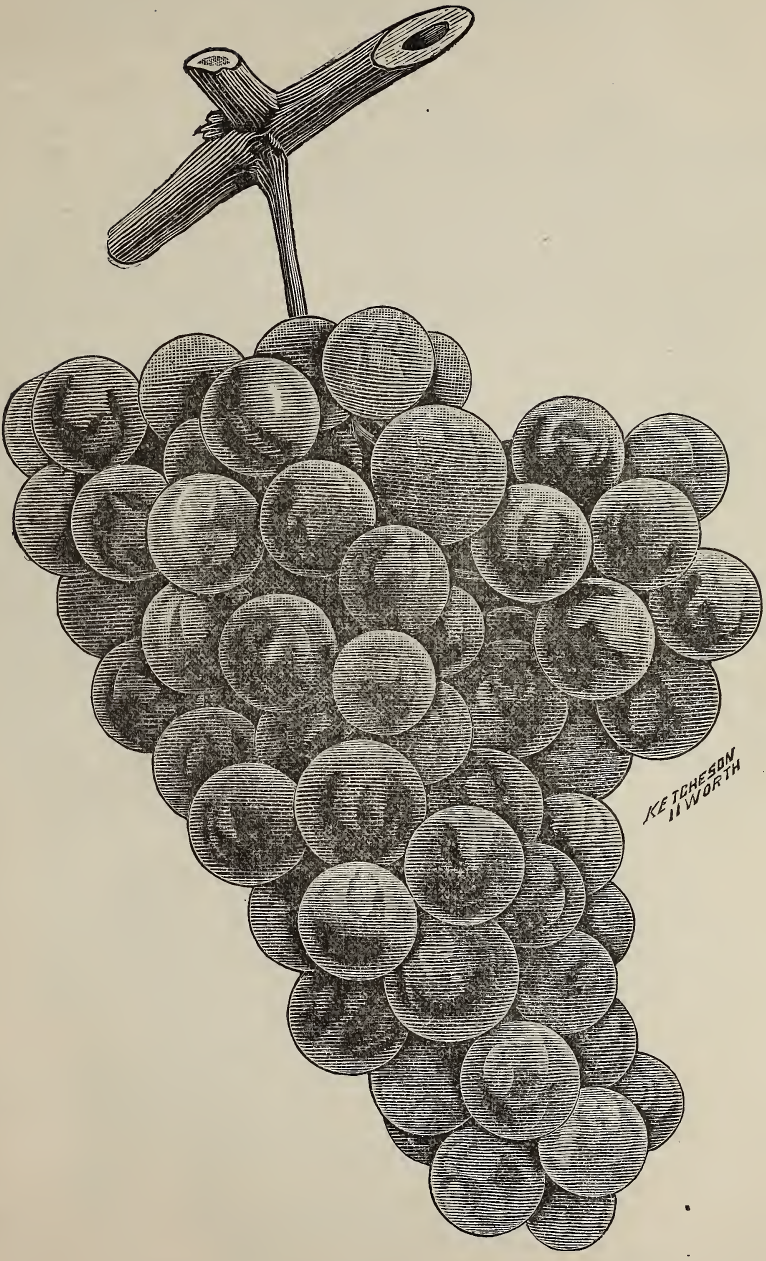
In regard to raspberries, I have nothing specially new to report. The Gregg continues the prime favorite as a large, productive, vigorous growing black-cap. Mammoth Cluster still holds its own in public favor, and is perhaps second only to the Gregg. The Hoosier Mammoth has been highly commended in Missouri, and is claimed to be a black-cap of enormous size and great productiveness, exceeding in these respects even the Gregg. I have procured a few plants for trial, and shall be prepared to report next season. I should not be at all surprised if it turns out to be the Gregg under a new name The Brandywine I fruited fully last season. It is hardy, productive, and handsome, but very poor, insipid, and flavorless. The Henrietta I have rooted out, as of no value. The Cuthbert I have under trial; and so far find it very satisfactory. Large, productive, hardy, and of good color and fine flavor. The general testimony, throughout the country, is also favorable to this raspberry—and also that the Queen of the Market is the same variety under another name.

NEW GRAPES.

The number of new grapes which are constantly appearing, is something remarkable; and the most noticeable feature in the case is that so many of them are worthy of attention. To those who can remember when the Catawba, Isabella, and Clinton were the only grapes in our lists, the fact that in a single exhibition last September at the inauguration of the Mississippi Valley Horticultural Society, at St. Louis, there were 249 distinct varieties of American grapes upon the tables, will show our wonderful progress in that direction. This included the older kinds, and many of the numerous hybrids, crosses, and seedlings which have been produced in all parts of the country. I believe this was the most complete exhibit of American grapes ever made. Ricketts, of Newburgh, was there with a fine collection of his new varieties, including Lady Washington, Jefferson, and Naomi, and he was awarded the first premium, $25, for the best 10 table varieties. The Prentiss and Duchess were also there though the latter did not arrive in time for entry for competition. The Prentiss was awarded a premium of $5 for the best bearing cane of new seedling for table and market, quality and productiveness to rule. The Triumph received the premium of $10 for the best plate of grapes for table, exhibited by Rommel & Sobbe, of Morrison, Mo. This grape was grown by me many years ago, and was near being thrown away because it was too late in ripening for my locality. It has acquired a great reputation South; and I have had orders for it, both from the South, and from France, far beyond my ability to supply. The Cynthiana received a premium of $10 for the best plate of grapes for wine, also exhibited by Rommel & Sobbe. For the best bearing cane of new seedling for wine, quality and productiveness to rule, a premium of $5 was awarded Elvira Seedling No. 3, since named Etta, grown by J. Rommel, and exhibited by Rommel & Sobbe. Bush & Son, of Missouri, received the first premium, $25, for best 10 varieties for wine; and T. S. Hubbard, of New York, the premium of $50 for best collection of grapes. The new seedlings regarded as most promising for the south and southwest were nearly all from the Taylor grape, and its descendants. Nicholas Grein, of Hermann, Mo., had a very interesting and promising collection of new seedlings, several of handsome appearance and excellent quality, for which a discretionary premium was recommended. Herman Jaeger, of Neosho, had also some 25 seedlings. Jacob Rommel had also a considerable number of seedling grapes of varied character, principally regarded as valuable for wine-making; but some of them seemed promising for table use also.

In addition to the above-named, a grape of considerable merit has been sent me by John Burr, of Leavenworth, Kansas, formerly a resident of Columbus, and the originator of Burr's Pine and other valuable strawberries. It is a black grape, of really excellent quality. Bunch and berry medium; vine vigorous and productive, with healthy foliage of the Labrusca type. I think it will be found as hardy and as healthy as any of the most popular of the older kinds—Concord, Hartford or Ives—and of much better flavor, being entirely free from foxiness It is also very early in ripening, I think a little earlier than Hartford, and, in my judgment, ought to supersede that variety as well as the Early Champion, and several similar abominations, whose only merit is earliness. There are now so many really good grapes, it is time that our society placed upon the rejected list such varieties as are, by reason of inferiority, unworthy of cultivation. The Hartford Prolific may be taken as a type of the class, which, although hardy and productive, never produces grapes fit to eat, or of value for any purpose, unless it may be to sell, very early in the season, and to disgust the unfortunates who try to eat them. Janesville, Dracut Amber, Rentz and Ives Seedling, I would reject as table grapes, although the last-named has value in some sections for wine-making. The name of Mr. Burr's grape is Early Victor, and I feel sure it will be welcomed by planters as soon as its merits are fully known, as a very valuable, early grape, both for family use in garden planting, and for profit as a good market variety. I do not know that it is yet offered for sale; but from information received from Mr. Burr, I think it will be, the coming season, probably in the autumn of 1881. When it does appear, I shall buy it with confidence and recommend it conscientiously. I have just one trial vine which has fruited two years.

Mr. Burr wrote me last August, that the Early Victor began to color, at Leavenworth, July 9th; Moore's Early, the 21st of the same month. It ripened at Delaware a few days before Moore's Early the past season, but there was not the difference reported by Mr. Burr. It is a much finer flavored grape than Moore's Early, and a better keeper. Not as large, however, being in size of bunch and berry rather larger than well-grown Clintons.



EARLY VICTOR.—(See page 34.)

A seedling of Mr. Rogers', formerly No. 44, but afterward named Herbert, seems to me worthy of much more notice than it has ever received. I received cuttings of it from Hon. Marshall P. Wilder, some years since, with other varieties of Rogers' grapes that were not much known and cultivated. If the Herbert continues, upon further trial, to sustain its present character, I shall regard it as one of the very best black grapes I have ever grown, and worthy of extensive planting. The vine is very vigorous in growth and very productive; the foliage large and healthy. Berries and clusters both very large and handsome. Flavor rich, sweet, but sprightly, and as free from foxiness, either to the taste or smell, as the Black Hamburgh. I think it, all things considered, the best black grape of its season, ripening with the Concord. It is also a good, late keeper.

The Brighton was more satisfactory the past season than ever before. It starts very early in spring, and was injured in fruiting somewhat by late frosts, but it ripened its fruit admirably, and is a first class grape in quality. It will not endure our severe winters without protection, but it is well worth the trouble of pruning in the fall, and covering with a little earth, which will insure its safety.

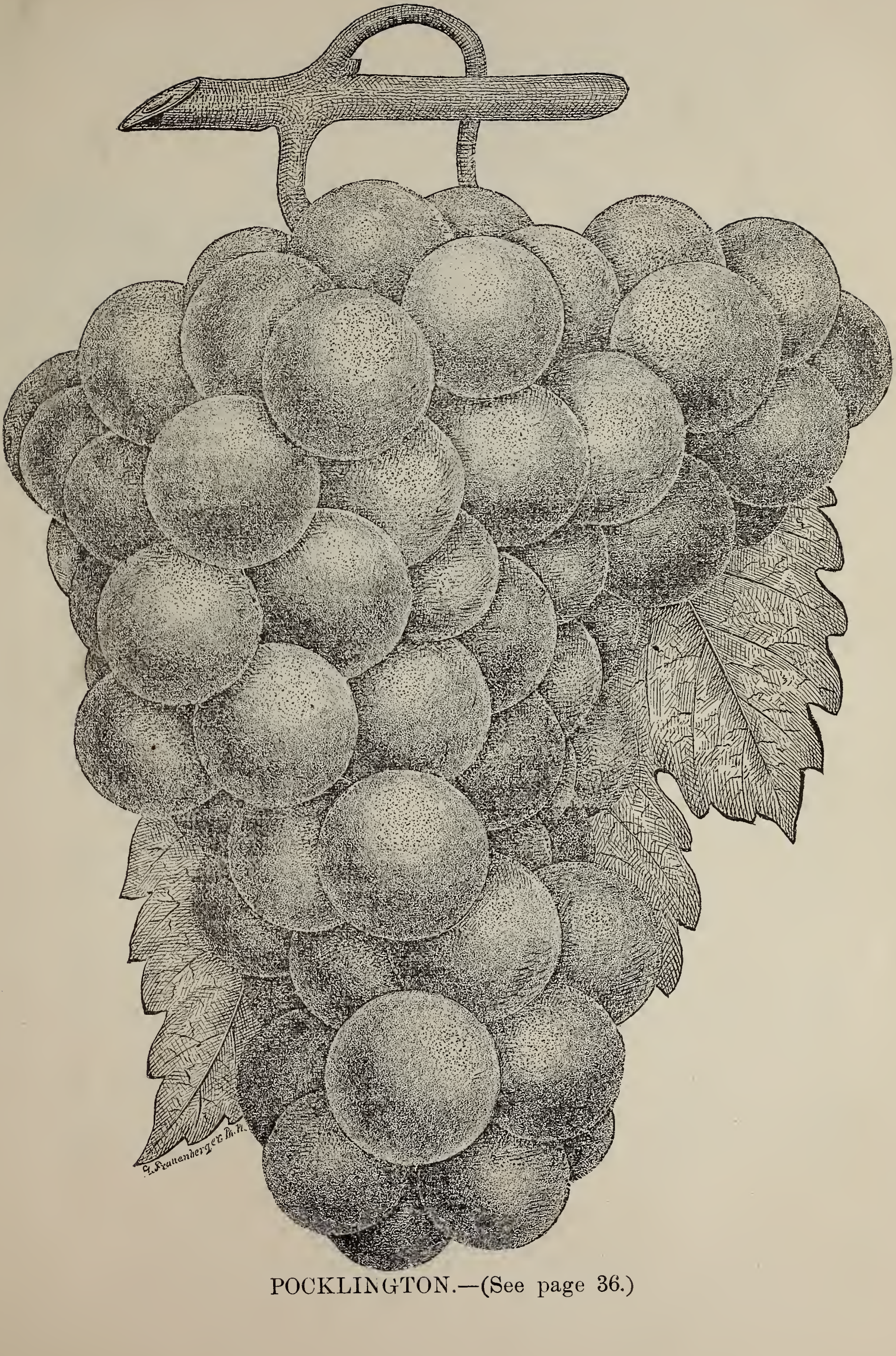
Moore's Early, fruited again the past season, and sustained its former reputation. It is simply an Early Concord. So far, the berries have been a little larger; the clusters rather smaller than Concords. Habit of growth the same; time of ripening, a week to 10 days before Concord.

A specimen of the Pocklington grape was sent me by Jno. Chorlton, of Rochester, which gave me a more favorable impression than I had before entertained of this variety I think it is a Concord seedling from its habit of growth and foliage, although it is a white grape of the largest size, and very handsome in appearance. It has considerable foxy odor, which is, however, much more palpable to the smell, than to the taste. It is a grape of richer flavor than the Concord, will carry much better, and keep longer and in better condition. Our late Secretary regarded the Pocklington as the most promising for a popular grape for profitable market purposes, of all the new white grapes of recent introduction. I think it ripens about with the Concord.

The Niagara is still exhibited and highly extolled by its owners, but is not yet offered for sale. It has been figured and described in the Rural New Yorker the past season. The editor commends it for health, hardiness of the vine, and productiveness; but does not consider it better than Concord in quality. It is a grape that I have neither grown, nor seen growing; so I can personally say nothing of the character of the vine. The fruit which I have seen and tasted on exhibition, I thought good, but not high-flavored; less foxy than Concord or Pocklington. Its principal recommendation rests upon the hardiness, health, and productiveness of the vine, which is expected to be suited to general cultivation.

A white grape, about the size and general appearance of the Niagara, and of rather better quality, was sent me from Southern Illinois. It is also a Concord seedling of healthy and vigorous growth, and may be a worthy addition to the new kinds, although it has not yet been honored even with a name.

I have had two or three new seedlings of my own the past season which I regard as promising to be valuable. One, a large black grape, a Concord seedling crossed with Muscat Hamburgh, has foliage of the Concord character, with fruit entirely free from foxiness, and much like the Hamburgh. It received a premium as the best new seedling at the last Ohio State Fair.


G. Frauenberger Ph. Pl.

POCKLINGTON.—(See page 36.)

Another red grape, a cross between Catawba and Delaware impressed me very favorably: the flavor and quality admirable, and habit of growth so far satisfactory. Two or three others are good, but will require further trial before forming an estimate of their value.

The Jefferson grape I regard as among the most promising of the new kinds. A native cross between Concord and Iona, with apparently the Concord vine and Iona fruit. The quality of the grape I think fully equal to Iona, and very much like it. In size and form of cluster it is very attractive, being large, and often double-shouldered.

The Lady Washington, one of Mr. Ricketts' grapes, a cross between Concord and Allen's Hybrid is now before the public, and so far has proven healthy in foliage and remarkably vigorous in growth. The grape is large and very handsome; quality good and flavor quite pure, without foxiness. I have no doubt that it will be found at least as healthy and as hardy as any of the Rogers' Hybrids or the Brighton. A beautiful and promising variety.

El Dorado seems in habit of growth much like the Lady Washington, and I believe is a twin-sister of it. I remarked on these grapes last season; and they have fully sustained their previous character.

The same remarks apply to the Highland, a large and handsome black grape, which has proven a good grower with healthy foliage, and is one of the finest in quality.

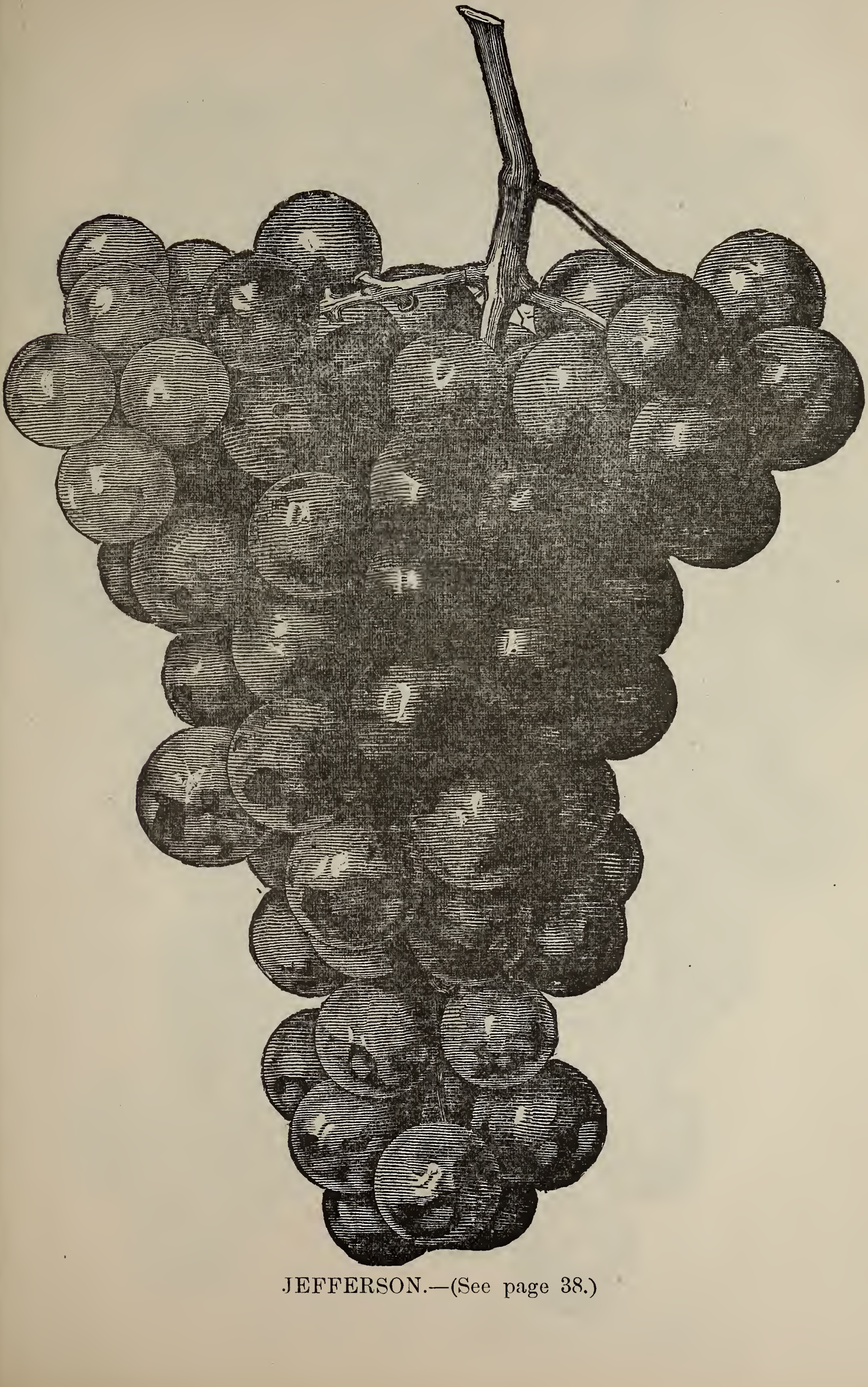
The Duchess, though a good grower, has rather thin foliage, and has shown greater tendency to mildew than the other new kinds mentioned. I think it worthy of trial as a garden, or amateur grape, but fear it would not succeed for vineyard purposes except in favorable localities, and where mildew of the foliage was not prevalent. It is, however, a beautiful and excellent white grape, very desirable wherever it can be successfully grown.

The Prentiss grape is now offered for sale; but as I have not grown it, am unable to say any thing as to the habit or growth of the vine. It has been exhibited in large quantities, showing great productiveness and good keeping qualities. It is so nearly like the old Rebecca grape in general appearance and flavor, that it would be difficult to distinguish between them. The Prentiss, however, seems to be more productive.

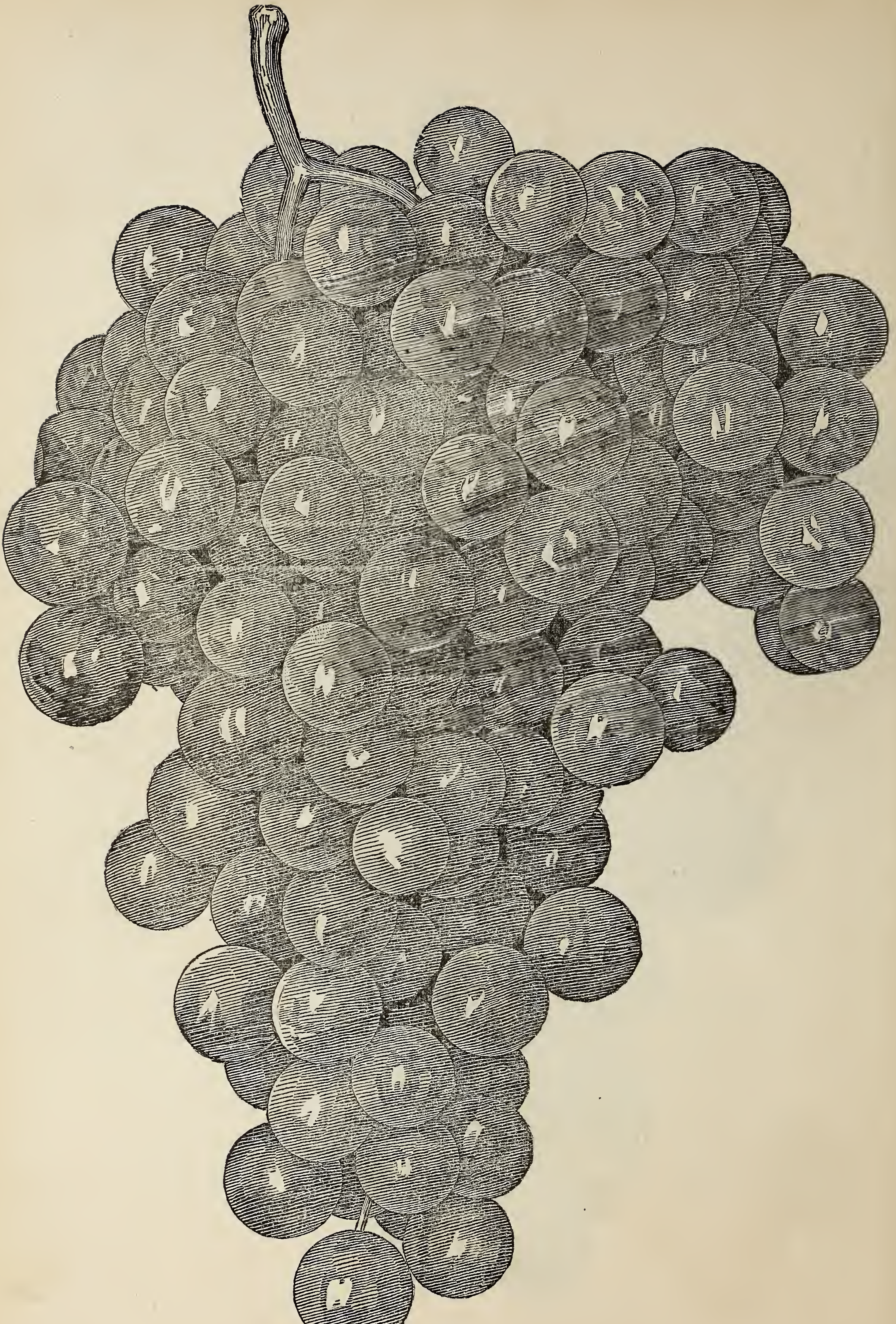
The Noah grape sustains its character as a promising variety among the newer introductions of white grapes. A strong grower, hardy and very productive, with strong and healthy foliage like the Elvira, but a larger and better grape, not so close in the cluster as to be destroyed by cracking.

A seedling named Mabel, sent me from Freeport, Illinois, grown from the Delaware, may prove valuable, as the fruit is larger than that of the Delaware, of the same color, and much like it in quality. The foliage is thicker, and the growth stronger than that of Delaware, and I shall await its further development with much interest.

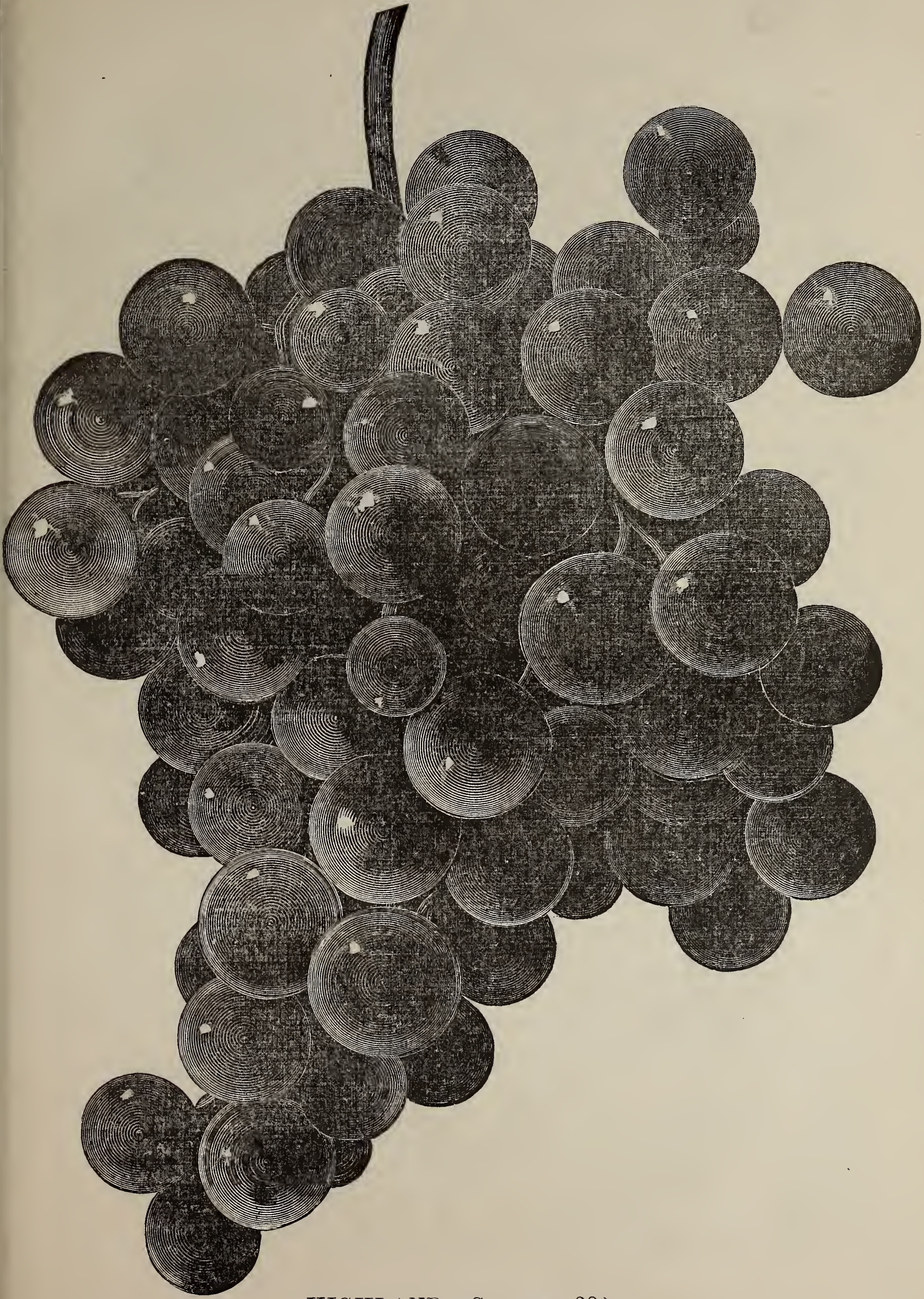
The limits of a report will hardly permit a general description even of all the most promising of the new grapes; but the extraordinary number of varieties showing decided improvement, fully warrants the belief that our country may become the first grape-growing nation in the world, and with varieties not inferior to those of the famous vineyards of Europe.



JEFFERSON.—(See page 38.)



LADY WASHINGTON.—(See page 38.)



HIGHLAND.—See page 38.)

AMERICAN VINES IN FRANCE.

The destruction of the native vineyards of France by the *Phylloxera* is still going on, and is gradually spreading to adjoining countries. Continued experiments with vines of American origin, both as stocks for grafting and for vineyard planting, are still attended with success; and at an international convention of grape-growers held last September, at Lyons, France, and composed of delegates from the principal vine-growing districts of Europe, the unanimous conclusion, based upon careful observation and experience, was, that they must look to the vines of America as their only hope for success in the future, against the attacks of the dreaded enemy, and the restoration of their devastated vineyards.

PAPER-BAGS.

Further experiments with the use of paper-bags of thin manilla, for the covering of grapes the past season, have been so satisfactory, that I recommend it, especially against the attacks of birds, and propably as a prevention of the rot. Grapes so covered, ripened perfectly, and were handsome, and I thought better than those left uncovered. When the bags are intended to be used, the pruning and training should be so managed as to prevent a crowding of the clusters; and a judicious thinning out, leaving the bunches somewhat scattered, would render the operation of bagging much easier, and the fruit would undoubtedly be larger and better also.

VEGETABLES.

In the way of vegetables, I have grown the past season the following potatoes: Early Ohio, Extra-early Vermont, Pride of America, Snow-flake, Ohio Beauty, and some new and yet unnamed seedlings. Potatoes have yielded a fair crop, without any tendency to rot. The Early Ohio is a very good early variety, a few days earlier than the Vermont; a fair cropper, but I think not better either in yield or quality. The Vermont continues very satisfactory in all respects, and in my soil and locality has been better than the Early Rose or any early kind I have thus far grown.

Snowflake, for a second early potato, is unexcelled; and for late winter and spring use I have found nothing better than the Ohio Beauty, though when grown in ground made over-rich its tubers are too large, and often hollow; and it is sometimes more inclined to be rough-skinned than other kinds, whether from the attacks of wire-worms or some other cause, I am not quite certain.

The Pride of America I have hardly grown long enough to express a decided opinion; but so far do not find it specially remarkable, or better than older varieties.

A variety of cabbage, called Perfection Drumhead Savoy, I have found of excellent quality, and heading better and more uniformly than any Savoy or wrinkled cabbage I have heretofore grown. For family use it can hardly be excelled. The cabbage-worm has not been quite as destructive as in former years; but troublesome enough. In my garden they were partially checked in their operations by the birds; principally by the little brown sparrows familiarly known as "chippies" or "chipping birds." I repeatedly saw them flying along the rows examining each head, and capturing all the worms which were in sight. To their good offices I mainly attribute a more perfect crop than usual.

COLUMBUS HORTICULTURAL SOCIETY.

I attended the exhibition of the Columbus Horticultural Society, September 28 and 29, where I found a creditable and interesting, but not very large display of seasonable fruits, flowers, and vegetables. Among those most worrhy of notice, were: twenty-five varieties of apples, well grown and handsome; with a small collection of vegetables, including sweet potatoes, beets, carrots, Lima beans, and sweet corn, from the State Reform School, at Lancaster.

Several handsome collections of fall and winter apples: W. H. Innis exhibiting 50 varieties; A. J. Nelson, 32 varieties; Wm. Marion, 14, and W. S. Simonds, six varieties. Some apples named "French Rambo", were noticeable for large size and handsome appearance; Rambo shape and flavor; but coarse-grained. Probably the Summer Rambo, or Rambour Franc; but larger specimens than I had before seen.

There were some handsome Duchess and Belle Lucrative Pears; several exhibits of Orange Quinces, very good specimens. No peaches nor grapes were exhibited. There were altogether about 150 plates of the fruits above named.

An interesting display of vegetables included the following varieties of potatoes

Burbank's Seedling; Brownell's Beauty; Brownell's Surprise, a long, smooth pink skinned variety; Dunmore, large, white potato, resembling the Peerless; Early Ohio; handsome, uniform specimens; Early Rose; Eureka; Shotwell; Snowflake; and Victor, a large dark-skinned sort.

A. W. Livingston & Sons exhibited:

Cuban Queen Watermelon, very large, and some smaller specimens of other kinds.

Pine-apple and nutmeg cantaloupe melons.

Golden Trophy, Acme, and Paragon tomatoes, handsome specimens.

Large, well-grown Weathersfield and Yellow Danvers onions. Also White Silver-skin.

A small display of Lima, and other beans. A very good collection of cashaws, squashes, and sweet pumpkins, in variety. Also Yams and Nansemond sweet potatoes. Some handsome and well-grown purple egg plant, and a basket of the old Neshannock potatoes, rather small specimens, completed this display.

J. F. Linton had quite an interesting display of fruits and vegetables. Apples pears, and quinces; and some Flat Dutch cabbages of enormous size, claimed to be grown "without manure," but were raised on land where the refuse from the starch factory had been deposited for several years. They were larger than Marblehead Mammoth as commonly grown. There were also two stalks of Curled Kale, very finely grown, 2 feet across and 18 inches high; also some large heads of Millet, claimed to produce 3 tons to the acre. Mr. Linton also exhibited a Chinese green squash, which looked like a watermelon; and a queer-looking Chinese cucumber, sharp-pointed, and shaped like an elongated butternut, or long red pepper.

Some very fine specimens of field corn, both white and yellow, were exhibited by Timothy Sherman; ears 12 to 16 inches in length.

There were several creditable displays of flowers and greenhouse plants, by Mrs Klippart, Mrs. Bradford, and others, including a very pretty collection of large-leaved and flowering Begonias. Some Ferns, Palms, and Cacti; among others, the Cochinea Cactus, Opuntia Coccinellifera, from Mexico. Some large specimen plants; oranges in bearing, India Rubber tree, and Caladiums.

Chas. Collins exhibited some very fine rose-blooms of the following varieties cut from standards: Adam, Agrippina, Coquette des Alps, Gen'l Washington, Gloire de

Dijon, Hermosa, Madam Charles Wood, Marie Guillot, La Reine, and some others.

In cut flowers there were also handsome baskets of Geraniums, Phloxes, variegated Petunias, Pansies, and Camellia-flowered Balsams.

I was sorry to see that many of the vegetables and plants were put upon the tables without names, or labels.

AD INTERIM REPORT, BY GEO. M. HIGH, OF MIDDLE BASS, OHIO. (FOR 1880.)

Mr. President and Gentlemen of the Ohio State Horticultural Society:

Throughout the Northwestern section of the State, including the islands, the past year will be remembered as one of the most prolific. Last winter having been unusually mild, the fruit-buds of all varieties came through entirely uninjured. The consequence was, there was scarcely a bush or tree that was old enough to bear, that did not produce and mature its fruit.

STRAWBERRIES

Are not grown to a great extent, except in the vicinities of the cities of Cleveland and Toledo.

For our own use we prefer the Triumph of Cumberland to any of the twelve or fifteen different varieties we have grown.

Crescent Seedling, Monarch of the West, and Great American, each usually produce a few pickings of large fruit, but the majority of them are small. Sharpless and Glendale made a fine growth the past year, but have not yet fruited.

RASPBERRIES

Produced a good crop. We grow for family use the old Red Antwerp, Gregg, Blue-Stemmed Black Cap, and on trial the Cuthbert.

CHERRIES

Plenty. Early Richmond and Gov. Wood; the former have not failed to produce a crop in each and every year of the past ten.

PLUMS

Were better than usual. The curculio take the most of them. The planting of plum-trees the coming spring will be larger than usual; varieties: Lombard, Green and Yellow Gage, Coe's Golden Drop and Wild-goose.

CURRANTS AND GOOSEBERRIES

In abundance wherever grown.

PEARS

A fair crop, but a good many trees were badly blighted in our vicinity. We seldom get more than two or three crops before the trees entirely give out. Beurre D'Anjou and Seckel do as well, or better, than any other varieties we have grown.

APPLES.

An immense yield; consequently they were very cheap; many orchards of choice winter apples were contracted at from fifty to sixty cents per barrel in the orchard. Cider-apples were sold at from six to eight cents per bushel.

PEACHES

During the past six years have not failed to produce a good paying crop; the result is the peach fever prevails to a great extent in three townships—Catawba Island, Danbury and Put-in-Bay, of Ottawa county. More than 200,000 trees have been planted during the past three years. We think fully three-fourths of them Crawfords, Smock, Salway and Stump-the-World. Those who have large, bearing orchards, say the early sorts did not pay very well this year, while the late ones averaged about one dollar per bushel, net. Will say this: During the ten years of our residence on the island, there has been no year that we did not have peaches. Winter of 1872 and 1873 killed eighteen out of twenty of our trees; yet the two not killed, bore. Trees were Early Crawford, and one of them, this year produced five bushels of peaches.

Forty thousand bushels were this season shipped from Catawba Island.

The majority of them were sent to Detroit, Toledo and Chicago. Never before were so many grapes grown upon the islands as this year. Notwithstanding that there was some rot, early in the season, and a few heavy dews that did much injury to the foliage along in July, the average of Put-in-Bay township, per acre, was nearly three tons.

We believe we can say that there are no fifteen hundred acres of land east of California, or I doubt even there, that have produced as much money—over three hundred thousand dollars—in one year.

For Catawbas, the average gross receipts per acre has been $213 per year. Have kept an accurate account of everything.

The first few years the cost of cultivation, gathering, etc., was $45 per acre.

Since then, the work has been done mostly by our boys. Think if we had to hire everything done now, the cost would not exceed $30 per acre.—Visited the Michigan State Fair. There was a large amount of fruit shown, but it was so divided up as not to present so good an appearance as it would have made had it been in one building. We also spent one day at the Toledo Tri-State Fair.

The display of fruit was quite small for that section of the country, as it could have made a handsome showing.

Neither the grounds at Detroit nor Toledo can compare, in beauty and convenience, with the Columbus Fair Ground.

About three-fifths of all the grapes grown are Catawbas; the balance are Concords, Delawares, Clintons, Ives, Nortons and Schraidt's Seedling. The prices were better than for several years, and were as follows: Catawbas, $80.00; Delawares, $120.00; Norton's Virginia, $160.00; Clinton and Schraidt's Seedling, $100.00; Concords, $40.00, and Ives Seedling, $60.00 per ton, and all grapes were in demand at those prices.

Along the shore, from Sandusky to Vermillion, some vineyards rotted badly. On Catawba Island and the Peninsula, they suffered considerably.

The planting now, where the land is suitable, is largely of the Delaware, they seeming to bring the most profit. It might not be out of place to give my own experience upon my home lot of sixteen acres, for the past ten years. I commenced with six acres of Catawbas; have now twelve and one-half acres in bearing, Delaware, Norton and Concord.

I will say this, in conclusion: If our State Agricultural Board does not make some improvements for the better display of articles for exhibition (as smaller, less wealthy, but more enterprising boards offer better buildings, more suitable for showing textile and other fabrics, fine arts, floral and fruit displays,) they cannot expect to keep up with the spirit of the times, nor to sustain the reputation of the great State of Ohio, now becoming noted as the mother of Presidents.

It was, on motion, ordered by vote of the society, that the election of officers for the ensuing year shall be held on Thursday, the 9th inst., at 2 o'clock P.M.

The business committee announced the following programme for the evening session:

1. Reports from local Societies.
2. A paper by G. F. Newton, of Millersburg, on the gathering, keeping, and marketing of fruits.
3. A paper by the President, Dr. John A. Warder, on Rural Cemeteries.
4. Discussion upon the subject-matter of the papers.

On motion, adjourned to 7 o'clock P.M.

EVENING SESSION, *December* 8—7 O'CLOCK P.M.

N. Ohmer, of Dayton, reported upon the condition of the Montgomery County Horticultural Society, as follows:

REPORT OF THE MONTGOMERY COUNTY HORTICULTURAL SOCIETY, BY N. OHMER.

MR. PRESIDENT: The following is a report of the condition, and of what the society has done during the year just closing. I copy, in part, from the Secretary's and Treasurer's reports at last Wednesday's meeting, being the last of the year, and the one at which the officers of the year are elected, resulting in the re-election of all the old officers.

The Treasurer reports:

December 3, 1879, on hand		$19 95
Paid as membership fees during the year		80 00
		$99 95
Paid out to sundries	$22 80	
" for printing reports	50 00	
Balance on hand	27 15	$99 95

Our society not being a banking institution, its purpose is not to declare dividends; hence, the balance on hand, though not large, is sufficient for all practical purposes.

The Secretary reports that the year's full complement of monthly meetings have been held, thus preserving unbroken the chain of continuous meetings from the first one held, till to-day, the last one of the year.

As heretofore, these meetings have been well attended, and their diversified and interesting character well sustained. The reports of committees on subjects appropriate to the occasion, both oral and written, have been entirely satisfactory.

The essays read, which are original papers upon subjects selected by the authors, are replete with valuable information and timely suggestions, and some of them written by gentlemen of more than local celebrity and ordinary ability.

This day's meeting closes the thirteenth year of the existence, and the eleventh year of the publication in pamphlet form of the society's reports and their general distribution. Those who are members now, and were at the time of the inauguration of this enterprise, doubtless look with complacency upon the work then commenced. They certainly have cause to be satisfied, for results have ensued probably not anticipated by them ; and not the least of which has been a change of the organization from one of a strictly local character to one much more widely known, bringing with the change, however, a proportionately increased responsibility on the part of every member to be sure he is strictly orthodox in the horticultural doctrines he teaches.

Judging from the large attendance of ladies and gentlemen at this meeting, it being more of a business nature than otherwise, we feel assured that there is no let up in the interest in the society, and that it will continue to attract large attendance at its meetings in 1881, as has been the case since its organization. The society is deemed indispensable by many who do not attend its meetings ; in fact, the writer has heard it declared a number of times by ladies, that they regularly look for the report of meetings in the morning papers on the day following the first Wednesday of each month, and in many instances read said report, even before they wash the breakfast-dishes.

The Stark County Society was reported as follows, by Mr. Stump, President of the society :

REPORT OF THE STARK COUNTY HORTICULTURAL SOCIETY, BY LEVI STUMP, OF RICHVILLE, OHIO.

This society has been active and useful the past year, and doing good work. Its meetings are held monthly, and are never failures ; most of them grandly successful. The meetings are held at the members' residences, and it is very noticeable, wherever the meetings are held, that everything is placed around and about the premises in the best of order, and the members and visitors are entertained in the most happy and instructive manner possible. Exhibition tables are well filled with fruits and vegetables in their season, and the dinner table is always bountifully supplied from the baskets of the ladies, with the best the land can produce. An essay on some appropriate topic is read by appointment at each meeting, and is followed by discussion.

The beneficial influence of this society, during its two years of existence, has been widely felt, and is generally acknowledged. Not the least of its benefits is the effect it has produced on the members themselves, in a social and educational way. A programme of the places of meeting for each month of the year is printed and circulated in January ; and a report of the proceedings of each meeting is published in the county papers, and it is ordered, hereafter, that they be published in pamphlet form for distribution, and to be preserved by the members.

James Edgerton reported for Eastern Ohio, from the Belmont Horticultural Society :

REPORT OF THE BELMONT COUNTY HORTICULTURAL SOCIETY, BY JAMES EDGERTON, OF BARNESVILLE.

We continue to hold our regular meetings once a month, with an increasing attendance as compared with a few years back. We hold our meetings on the social plan, and at residences of members through the spring, summer and fall, and in the town of Barnesville, in the winter.

We have a membership of about fifty, beside women and children, and about $25 in the treasury.

We got up a very interesting Farmers' Institute the past winter where we had Secretary Chamberlain and Dr. Townshend. We held a two days' meeting, which was well attended and very interesting.

Our officers for 1881 are: H. Keenan, President; Jos. B. Gibbons, I. C. Hall, Vice Presidents; I. N. Vail, Corresponding Secretary; W. D. Edgerton, Recording Secretary; J. V. McLane, H. Keenan, J. V. McLane, I. C. Hall, Executive Committee.

Mr. S. R. Moore, Secretary, reported as follows for the

MUSKINGUM COUNTY HORTICULTURAL SOCIETY, OF ZANESVILLE.

Mr. President and Gentlemen:

Our society has held a meeting once a month, and is now entering on the fifteenth year of its existence. Our plan has been on the social order of meeting from place to place, taking a basket of provisions to provide ourselves and friends who may attend. At the last meeting of the year, or on the first of the succeeding year, a committee is appointed to make a programme for the ensuing year. The names of officers elected and appointed, together with the places of meeting and the names of essayists are neatly printed on a card for distribution among the members, and those who take an interest in Horticulture. During the summer months, our attendance has been large, with occasionally some visitors from the Eastern Ohio Horticultural Society. To our friends at Barnesville, we are to some degree indebted for the magnificent show of strawberries and cherries, made at our June meeting. The exhibition-tables have been better filled than in former seasons, and with many of the newer and rarer kinds of fruits in their respective seasons. Through the generosity of our County Agricultural Society, they offer premiums on several varieties, strawberries, raspberries, cherries, and some of the early apples and pears, to be awarded at the meetings in their respective season, by a committee appointed.

The ladies keep pace with other exhibiters in the way of bouquets and floral ornaments, and some of them might be classed as more than amateurs in that branch of Horticulture, or rather Floriculture, having improved very much from time and experience, which is the object of this and other like organizations. We have been highly entertained by a paper from the Rev. Mrs. W. P. Shrom; also by a scientific description of the Locusts, and a paper on ancient Horticulture, by the Rev. Geo. F. Moore. Each member has done quite well to contribute and advance the interest generally, although our actual paid memberships fall short of fifty. We look back to the first year of our existence, and our condition is far better than fifty per cent. in knowledge and sociability.

The published, meager reports in our county papers do not give to the reading public an actual idea; more than that, we are alive, and hold a meeting at such a place, and such a time, and to the members and visitors present at this State meeting, I will say to you come to our meetings and we will give you a hearty welcome, and then judge for yourselves.

Mrs. Louise V. Boyd, delegate from the Indiana State Horticultural Society, being called upon, responded as follows, upon "Horticultural

Progress in Indiana:" Mrs. Boyd spoke of the respectable antiquity of horticulture; and remarked very pleasantly upon a certain little difficulty about an apple in the first garden, and its wide-spread results. She spoke also of the hanging gardens of Babylon, and thought the first horticultural meeting was probably held in the Ark; but coming to matters of a later date, she continued:

> In these days of telegraphic dispatches and daily papers, it seems almost like a vain repetition to attempt to report the horticultural prospects of your neighboring State. As to the fruit products—our apple crop was about a fair average; the pear, in the aggregate, light, owing to the scarcity of bearing trees, so many having blighted in recent years. The peach crop was, for our State, an unusually good one, and the quince too, extra.
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> Of our State Society we may report that it is in a flourishing condition, and that several new county or other local auxiliary societies have been formed in the last year. The Wayne county, the Plainfield, the Crawfordsville, and others, are unflagging in their zeal. The Crawfordsville society, is particularly interesting from the fact that the faculty of Wabash College take the greatest interest in the meetings, as also many ladies of culture and refinement.
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> Indeed, everywhere in Indiana the Bible idea, that "it is not good for man to be alone," is carried out in our societies, and everywhere the taste and influence of woman is felt to be an advantage to the progress of the cause.
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> Nurserymen say that in the neighborhood of horticultural societies, they notice an increased demand for the best of fruits, and the officers of our society report a greater demand, from year to year, for horticultural literature.
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> In the adornment of yard and garden, in window-gardening, fern-culture, and the care of house plants, we see the growing taste of our people for the beautiful in nature. Man and woman, boy and girl, are alike captivated by the button-hole bouquet, and breakfast, dinner, or supper may, in the humblest home, be made more appetizing and refreshing by the addition of fresh fruits and flowers.
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> We, as a people, are certainly reaching a higher plane of horticultural knowledge; at least we are taking pains to inform ourselves on the needs of vegetable life, and to obtain a knowledge of which bird or insect is the enemy to, or which the protector of, trees, plants or vines, fruits, flowers, or vegetables.

Dr. Warder made some remarks about the Pomological Society of the State of Michigan, reading also the constitution and articles for the government of her societies. He said Michigan claims the maternity of all her societies, while Ohio claims affiliation with all of hers.

Mr. Innis reports that there is in Fairfield county a society called the Lancaster Horticultural Society, which has brought to notice one good and valuable apple named Kincaid. Grapes, Mr. Innis asserted, are richer, and the red juice of deeper color in Fairfield county than in other places; and fruits also are more brilliantly colored. The strawberry Forest Rose, is also grown there in great perfection. Fruit-trees bear abundantly, and vegetable productions are especially flourishing. He had also observed that the leaves of the maple-trees were more richly colored in Autumn than in other localities. He is disposed to attribute these conditions to the presence of a large per centage of iron in the soil.

Prof. Orton would be disposed to find another explanation, in the superior drainage of these soils. The red leaves of maples do not contain iron; and the red oxides of iron do not enter into the composition of fruits, being insoluble.

Mr. Ohmer says while it is recognized that the fruits upon his place are specially high-colored, there are no surface indications of iron in the soil

Mr. Pierce said that in sections bordering the Susquehanna river, the soil is full of iron; but that the fruits are not especially high-colored.

Mr. Innis replied that in the region mentioned in Lancaster county the soil is underlaid with sandstone and well drained.

Mr. Newton.—With regard to substances in the soil inducing high color in fruits, his observations inclined him to think it was not the cause. Apples on high land are usually high-colored; on low land ,dull-colored. Soil may have some influence, but he regards altitude as the principal cause of high color.

Mr. Harrison never finds blotched apples near the Lake; they are usually smooth and high-colored. Back from the Lake they are blotched and dull in color.

Mr. Kellar thinks the sun is the agent which colors the fruit.

Dr. Warder thinks it probable that the idea of color in fruits being produced by iron, comes from the popular notion that iron in the blood causes its deep color. He believes that light, rather than the heat, of the sun causes color. Where the foliage is not too dense, the color is high, in northern regions. In sandy and light soil apples are smoother and higher colored than in heavy soils.

Mr. Kellar is sure that the heat of the sun is the cause of color.

Mr. Newton says we must prevent evaporation, if we would have fine, high color. He barrels apples tightly in Autumn or Winter, and finds them high-colored when opened in Spring.

Mr. Pierce spoke of papers being cut in stars or fanciful figures and placed upon naturally high-colored apples while maturing, would have the figures in light color under the papers, when gathered.

Mr. Hugh Keenan.—Trees pruned so as to leave open heads, produce higher colored apples and peaches. He believes air and light are the agents of high color in fruit.

Prof. Orton.—It is a fact that the greatest fruit-producing sections of England are of red soil, containing more or less iron; but he doubts the iron being the cause of their adaptability to fruit-growing. He has observed ridges of drift where orchards are specially successful. He has never noticed that iron in the soil had any apparent agency in producing color in fruits, or in the leaves of maples.

Mr. Pierce read the following paper:

ORNAMENTAL PLANTING.

BY L. B. PIERCE, OF TALLMADGE, OHIO.

If a law should be passed that every diamond in the country should be set in lead, and that the larger the jewel the meaner and more paltry should be the setting, what an outburst of surprise and indignation would be heard from the diamond-owners of the land. Yet a law as surprising and preposterous as this would be, is in force all around us, and instead of any one expressing either surprise or indignation, all hasten to obey its behests, and vie with each other in loyalty to its demands. I refer to that law of public opinion that upholds a man in building a five-thousand dollar house on a ten-dollar door-yard.

Such instances are not rare. One would not expect them to be, in the crowded city; but out in the country, where land is plenty, and nature stands ever waiting and ready to assist, it would seem that every house might be like an "apple of gold in a picture of silver," but such, alas! is not the case.

A day's ride through the country shows a constant succession of cramped, cluttered, and carelessly-arranged door-yards surrounding commodious and fine-looking farm-houses, which are not only expensive and well-furnished, but have considerable claims to architectural beauty.

More than one owner of such a place has wished in the beginning for something better, for something different from that which was to be seen all around, and has had vague ideas of groups and curves, but not knowing where to obtain the requisite knowledge, has, after wishing and waiting for weeks or months, become the victim of some glib-tongued tree-dealer, and in the course of events found himself saddled with a lot of stuff for which he was not ready, and which he knows not where to put. However, the next morning the trees are counted, an equal number of pieces of lath are procured, and ten or twenty minutes are spent in sticking these around the yard, the job of planting turned over to the hired-man, and the owner goes to town. After a while it is discovered that two of the most valuable trees are in the carriage-drive, and some more in the foot-walk, and in the course of ten or twelve years it transpires that the best view from the parlor window is hid by a Scotch Pine and a Norway Spruce, which were intended to occupy six feet, but have already covered twenty-four, with no prospect of stopping; while the roots of a Willow are invading the well, and the Trumpet Creeper is prying the clap-boards from the house, and the mischief is to pay, generally.

Some of the trees have become valuable for their fruit; others have become favorites of different members of the family, and the only remedy that is now of use, that of the "little hatchet," it is almost impossible to apply.

Thousands of these unplanned and misplanted places are to be found, and the element of time is so large a factor in the problem that it is next to impossible to remedy them.

Said a gentleman of sixty, a man of cultivated taste, to me, after listening to a discussion upon this subject, "I planted my place thirty years ago, in the best light that I could obtain, and in the fashion of the day, and I have watched over and tended those trees, until I would almost as soon lose my right arm as to see any of them cut down, and even if I had no affection for these pets of my leisure hours, I am too old to begin anew."

The force of this argument cannot be gainsaid, and admitting it, it will be seen that the chance for the readjustment and improvement of places many years planted, is but a very small one. Something can be done for many of them by a true artist, but the tyro and the bungler will be apt to mar and destroy, rather than improve. The difficulty of rectifying mistakes once made, will at once suggest the importance of beginning right, and this brings me to the subject of my essay,

ORNAMENTAL PLANTING.

To define its meaning, to point out the way, and caution against a multitude of mistakes, is no easy task, even in the compass of a volume, but to do it, or attempt to do it, within the limits of an essay, is still more difficult, and I fancy that this is the reason why many, in fact most of the magazine and newspapers-writers upon the subject, give pages of gush upon its beauty and desirableness, and fail to give any practical rules for its performance.

It is one thing to praise the beauty of a curved walk, and another to give a rule for the curving and placing of the walk. It is one thing to point out the beauty of a full-grown Norway Spruce, limbed to the ground, and resting upon the lawn, and another and a hundredfold more difficult to tell in what precise spot upon the lawn that tree should be placed. To do for this subject what so many fail to do, will be the attempt (as far as time will permit) of this essay.

Ornamental planting may be briefly defined as the art of planting pictures upon grass, by the use of trees, shrubs, and flowers. Its object is the beautifying of our homes, our public parks, and burial-places. Its use in these two latter instances has already reached an advanced stage in this country. In the former it is yet in its infancy, and it is to this branch of the subject that I shall confine myself.

We look upon a meadow which is perfectly level, and which the timely rains have covered with a mantle of bright green, and it pleases our eye; but after we have seen it a few times, we weary with sameness, and though it be as small as a calf pasture, or as large as Dalrymple's farm, it is simply a level meadow, characterless and uninviting.

But, plant a huge maple in the center, and what a new interest attaches to this portion of the field as the wind plays hide-and-seek among its branching top, and its dark, cool shadow spreads itself invitingly upon the grass. Then let a foot-path, starting from the roadside, wind in a long sweeping curve beneath the maple and beyond to the farther side, and though there is nothing beautiful in this earth-colored ribbon with which we have trimmed the green meadow, it has added another new interest to the scene, and if, where the path makes its sharpest curve, we plant a square rod of blue forget-me-nots, and spatter the grass with ox-eye daisies and golden dandelions, how the whole scene will liven up. Suppose now that we lead a winding river along the far side of the meadow, and plant its bank thickly with the dark-boughed hemlock, and in front of where the trees are darkest and thickest; we plant a patch of golden-rod, and farther down a group of black alder with its coral berries glinting in the Indian Summer haze? Suppose that to one side we have a thick forest, and that out of its leafy recesses we bring promontories of hazel and sassafras into our meadow, making deep bays of living green, and that elsewhere in the meadow we plant a cluster of the glossy mulberry with a group of white-blossomed elder in front; and suppose that through a break in the trees we can see across the river a church-spire surrounded by a little village, will not the whole scene be changed as though touched by a magician's wand?

We have not only one picture, but, as the seasons pass in rotation, a hundred pictures are flecked by the shadows of the scudding clouds, and what was tame and uninteresting before, is now a "thing of beauty and a joy forever." This is not a fancy sketch. What is here depicted, can be seen everywhere, where the plow and scythe are not used, and the hoof of the busy sheep is not allowed to wander. Cut away the half of a thick forest, and how quickly nature sets about covering and making beautiful the bare and ragged outline of what is left. Almost before we know it, the chestnut and tulip sprouts have run up and mingled with the giant branches above, and the dog-wood and shad-blow have pushed out below; the hazel-copse and sassafras groves have silently stole an underground march out into the adjoining clearing, and built up buttresses of verdure against the bare stems, and the wild grape-vine and the woodbine creep from the depths below and festoon the trees with living garlands of green and crimson, and in a few years the lavishness of nature has atoned for the wantonness of man.

To imitate nature in hiding the unsightly, and bringing to view the beautiful, is the work of the ornamental planter, but how different the task! Nature can furnish a mountain, or a forest for a background, and, ever flush with resources, can scatter seeds and budding roots with a liberal hand, and, unpressed for time, can wait for years for the survival of the fittest to complete and render perfect the picture she has begun. But if a man attempts to plant a picture, it has generally to be done within the limits of half an acre; he has often no better background than a red barn, and always a dusty street for a foreground, and a neighbor's pig-sty and chicken-park are frequently to be found upon the side. He has to plant these out of sight, and at the same time leave openings for what is pleasing; he has to find a place for numerous paths, and not unfrequently a carriage-drive; he must furnish shade, and at the same time leave plenty of sunlight; there must be room for a geranium-bed and a croquet ground; the big trees must not shade or ruin the little ones, and all must be selected, not only for their present appearance, but with a view to their future size and their propensity to grow beautiful with age. With all this to be done, is it any wonder that failure is written in glaring capitals upon so many places, and that the uneducated and unartistic farmer or mechanic makes so poor a show when he turns landscape-gardener.

There is another fact, that in my own experience and practice, has proven quite a difficult barrier to the accomplishment of the best results, and that is the disposition of owners to place their houses too near the street. In the country, especially where to get anywhere, or to have any one get to you, it is necessary to ride; where there are no daily calls of butcher and baker, and milkman, and newspaper-carrier; where land is plenty, and the farther back you get the nearer you are to the center of your farm, and your labor, it would seem that there would be little call to set the house close to the dusty street; but the facts are, that less land is devoted to door-yard, by owners of farms, than by many in the village. I believe I speak within bounds when I say that nine-tenths of the front-yards of farm-houses in this State number less than twelve rods of ground. Small as these are, many of them have to do double duty, being used for the pasturing of cosset sheep and young calves. Business called me, a few days since, to the center of a farming town, where the best land will not bring more than one hundred dollars per acre, and the number of houses does not exceed thirty, and my attention was called to two new residences just completed, costing about two thousand dollars each. One was placed less than thirty feet from the sidewalk, and the front-yard was just as wide as the house, no wider, and the landscape consisted of eight Irish junipers, planted at equal distances, each side of an expensive flagging-stone walk. The other was just ten feet from the sidewalk, and was fully occupied by a mortar-bed and a pile of flagging-stone. A beer saloon is situated just across the street, and it is possible that the blooming faces and winding walks issuing therefrom, will be ornamental enough without any farther outlay in that direction. The owner of one of these places is reputed to be worth fifty thousand dollars, and the other, one-half of that sum. What a pity that these two beautiful houses—for they were pleasing in architecture, and the completed one was tastefully and expensively furnished—what a pity that these could not be set back a few rods, with a frame-work of trees, and shrubs surrounding them, not only making them more beautiful, but giving them the character of a home, instead of a mere shelter from the weather, and at the same time adding greatly to their value in the eyes of all sensible people. How a place should be laid out and planted, without constant reference to a plan, it is very difficult to describe, but I shall have to make an attempt to do it.

Nearly all houses inhabited by one family, have two sides, which can be shared with the public, which can be in direct communication with the front-yard, and never be in any way interfered with by any of the daily operations and duties which render common, and in a measure untidy, one side, and the back side of a house. The back side is, from its location, out of sight, and on one side the living rooms generally open, and it is on this side that the wood-pile, the hitching-post and horse-block, the coal-house, and all the little conveniences and necessities of a back-yard have their place, and it is both pleasanter and more in accordance with the fitness of things, that this side, littered with the implements and debris of daily occupations about the house, should be screened from the observation of the public, and separated from the ornamental grounds in front We will, for convenience, call this the kitchen side. The opposite side of the house, containing the parlor, library, and other spare windows, we will call the parlor or bay-window side.

In cities and villages, this side of the house is frequently set close to the lot line, and from mistaken notions of economy, spite toward a neighbor, or propinquity of a neighbor's buildings or trees, made a blank, dead-wall, without either window or projection. In the better class of houses in the suburbs of towns and in the country, this side is constructed with a view to ornamental appearance from the street, and generally has a bay-window on the ground-floor, which is nowadays frequently carried up as a projection of the main building. The primary object of this large and projecting window was, doubtless, more room and light inside, but their three-sided out-look from one position gives them capabilities which it is not possible to obtain with ordinary windows, and the treatment of the ground outside assumes at once a threefold importance.

All do not think so, for I have seen them surrounded by a field of corn, fifteen feet high, which shed its pollen upon their very lintels; more than one, I have seen overlooking a vegetable-garden, with its rough palings adorned with fruit jars and Dutch pots; its beds of onions and cabbages, and rank September weeds; another one, overlooked ten feet of unkept lawn, and then took in all the varied and interesting phenomena of a large barn-yard, and another, at two feet distant, looked out upon the blank wall of a neighbor's house. It is needless to say, that all these windows had their sphere of usefulness considerably narrowed. It will be seen that in this problem of planting, we almost always have a side-yard as well as a front-yard to provide for; and that this side is often very important, from the fact that it is immediately in view from the best room and best out-look in the house.

The bay-window out-look is in fact the one to be studied the most carefully in placing the house, and in planting. The piazza would at first thought seem to be more important, but when it is remembered that this is available only during comfortable weather, and that for many months in the year it is only used as a place of temporary halting and leave-taking, while in the parlor, the visitor is frequently left alone for a time, and with comfortable surroundings he is more apt to be thorough and critical in his looking, the justice of my claim for the window will be apparent. At the same time that we provide for an extension of the grounds at the side, we must remember that only a limited amount of ground can be kept looking at its best; and that when we have much exceeded half an acre, we have gone beyond what the great majority of people will think that they can afford to plant or have time to keep in order. All this being taken into the account, let us take a piece of land with a gentle slope toward the road, with a frontage of eight rods and a depth of six. Now, on the back line of this lot, we will place the front line of the house, with the bay-window side of the house three rods from one side of the lot. Now we will extend this strip of ground three rods wide, to the depth of another six rods, making the line on this side twelve rods long. As it is on this side that the best views are supposed to be, it is desirable that the adjoining lot should be free from orchard or forest, and. if used for a barn-lot, the barn should be set back at least fifteen rods from the road, with the yard on the back side of it. This field need not be kept in grass, as most of the operations of farming are interesting, and the blooming clover or ripening grain or checkered squares of growing corn, make at all times a fit surrounding for the more elaborate planting of the adjoining yard. This truth in regard to the outside surroundings cannot be too strongly impressed upon the mind. I have repeatedly noticed that a place may be ever so elaborate in its appointments, and if it is sandwiched between a bank-barn and a vegetable garden with another barn across the road, it will appear much less beautiful than a cheaper place, where waving grain-fields and green meadows come up to the boundary fence. In the case which we are considering, the fence should be as neat and as light as is consistent with strength.

The front fence can be of any light pattern, not more than three feet high, which suits the owner. On the kitchen-side of the yard, we will plant a Hemlock or Arbor Vitæ hedge, and, when within a rod or two of the house, curve it around to the corner, thus shutting off this side from public view. The size of this curve will vary with the width of the house.

Having decided upon the size of the lot, which, in this case, is sixty-six rods, exclusive of the ground occupied by the house and kitchen-yard, and get it enclosed, the next thing will be to locate the front walk. But, to the inexperienced, the laws governing the placing of the walk, if they understand some of the details and aims of planting. Leaving then, for a moment, the question in relation to the walk, we will look at what is required in planting.

We have on the parlor-side a narrow strip of ground, the object of which is twofold, to wit: to furnish a grass-plat around that side, and to give depth to, and an air of largeness to the place, which could not be got from a small, plain, rectangular plot of ground, all of which is in front, and in sight from every point of view. For instance, a stranger coming along the street from the kitchen side, sees an ordinary square front-yard; it is all in sight (though it is prettily planted and neatly kept), and, this fact combined with its smallness, detracts greatly from the interest with which the stranger looks at it. He drives along until he is opposite the middle of the grounds, when he perceives that the side-yard extends some distance back, and that it is so arranged and planted that a second look is necessary to assure himself of the true extent of the grounds. Now, if some attractive shrubs or flowers are at the end of this view, and the house is of an attractive character on this side, a new interest will be awakened in the place, and his ideas of its beauty and extent will be considerably larger than they would have been had there been no side grounds. To make this side-space answer the purpose for which it was intended, it will need considerable and careful planting. The view at the farther end and on the outside, nearly as far as the bay-window, should be cut off by close planting, making a circular bay or *cul de sac*. To accomplish this, several hardy *shrubs* like the Weigela, or Tartarian Honeysuckle, should be planted in a circular direction, commencing at the back corner of the house and continuing to about the middle of the end, when the circle can be continued with Hemlocks until the outside is reached, when they should be continued near the fence as far as wanted —which can be opposite the window—the last two or three trees curving around like the bottom of the letter J. The shrubs should be planted four or five feet apart, and allowed to grow unchecked. The Hemlocks can be planted three feet apart and kept to the height of seven or eight feet, by occasional cutting back. Back of the Hemlocks, in the corner, a broad-headed, light-colored evergreen, like the White or Scotch Pine, should be planted and allowed full development. Where the shrubs join the Hemlocks, a Red Dogwood should be planted in front of the first two Hemlocks, giving a beautiful contrast in the winter by its dark crimson stems with the dark green of the Hemlocks, while the Hemlocks, in their turn, contrast with the lighter colored and different formed Pine which rises behind them. A narrow strip of Herbaceous Peonies can be planted in front of the Hemlocks at the corner, lighting it up in June with their varied and bright colors. Directly opposite the bay-window, in the curve formed by the end Hemlocks, a small oval bed of Coleus can be planted, while under the window a similar bed of Verbenas can be planted. Now, if the shrubs have been selected with regard to their different periods of bloom, and the lawn is kept closely shaven, this little strip of ground will be bright and attractive at all seasons.

Added to the lawn, it will give in the longest line of vision, by the corner of the house to the center of the lot at the street, a distance of thirteen rods, and give to the place a general look of size and character, which four times the amount of land added to the front, at the side, could not do. As the remainder of the planting on this side will have considerable reference to the views to be had from the window already referred to, it may be well to consider this subject briefly. Most persons are apt to think of their places with reference to what is upon them, or within the door-yard fences, and even the few who do look beyond these boundaries, seem to think it necessary to build an observatory upon top of their houses to do it. Farther than this, there are persons who are keenly alive to the beauties of a location by the side of a lake or river, or overlooking a romantic village, are unable to see anything worth looking at in the surroundings of a common country or suburban residence. It is often true that the landscape around a dwelling is tame, as compared with more favored localities, but this does not prevent the owner from making the best of what he has. To do this, it is necessary to carefully study the surrounding views, always bearing in mind that a small and beautiful picture is more to be desired than a large and commonplace one. There is but little beauty in a tamarack swamp, yet one of the prettiest little landscape pictures I ever saw was a portion of one seen between two hills covered with clover in bloom, over a field of ripening barley for a foreground. The larches were in their early summer dress of light-green, and only enough were seen to form a pleasing background and contrast with the rest of the scene. I was once seated in an office, where I had a glimpse of a bit of lovely landscape through the small aperture afforded by the opening of a single leaf of an inside blind. I arose and went to the window to more thoroughly enjoy the view which I wondered I had never seen before, and lo, the picture was gone. The careful study of a few minutes showed me that it was still there, but so surrounded with discouraging accompaniments that it was like a puzzle-picture to pick it out. From where I first sat, the unopened blinds had chanced to shut this out, and left only what was necessary to form a perfect picture.

I once noticed, between two large trees, a quaint and curious distillery-building, and was impatient to have the train start that I might have a better view. The train moved on, and behold, a broad expanse of bare ground, covered with low sheds and filthy swine. The quaint beauty of the building was at once swallowed up by the filthiness of its surroundings.

It is this capacity of trees, especially of evergreens, for framing what is beautiful, and leaving out in the cold what is unsightly; separating, as it were, the good from the bad, that gives to ornamental planting much of its usefulness as well as beauty. You do not need to own all the broad acres around you to profit by the beauty that broods here and there upon them. You have only to select such views as please you, and put around them a rustic frame of hemlock or pine, and they are as surely yours as though the title-deed were recorded in your name. Like the frame of a picture, put your heaviest and coarsest mouldings upon the outside, and your fancy and gilt-edged one within; or in other words, put your largest trees upon the boundaries, and your smaller and more delicate ones within, remembering to have your openings radiate from one common and desirable point of view, like the spokes of a wheel, and the work is done. But important as is this branch of the subject, we must leave it, and pass on to that of walks. There is probably no part of dwelling-house surroundings so perplexing to the seeker after knowledge, as that pertaining to walks.

There is no lack of information in regard to how to make them, even to the size of a riddle for sorting the gravel, but where to make them, and how to curve and not to curve them, is a question about which I can find very little in published works, yet it is a question that stares in the face every owner of a door-yard at the very beginning, and the proper placing of a walk may be considered in all its bearings as fully as necessary as where to put the trees. It is only by closely analyzing the subject, that we can arrive at any correct data upon which to formulate rules. In the first place, walks are only desirable as they are useful. They are necessary evils, more or less costly in building, and need constant attention to keep them tidy and in repair, and it is given as a rule by the best authority that "no more walks should be constructed than are needed for daily use."

This being the case, one walk in the front-yard of all places of ordinary size is sufficient. Should it be necessary that it should approach more than one door, it can be made to branch near the house. Should the front gate be in the middle of the lot, and the front door directly opposite, this walk will be a simple and straight one, and it will divide the yard into two equal portions, and to make a pleasing appearance, one side will have to be a counterpart of the other, and thus less of variety can be had. The flower-beds will have to be in pairs, of regular form and the same size. Should there be a pleasing view on one side, and a disagreeable one on the other, it will be difficult or impossible to plant one out and preserve the other without breaking up the harmony, which an equal division of the grounds seems to imply and demand. But let the gate remain in the center and move the house to one side, and connect the two by a gently curving path, and the planting will of necessity have to be changed. The flower-beds will look better on one side than on both, and the different views from the street can be planted in or out by groups of trees, without regard to whether the one is twin sister of the other or not

Again, let the house remain in the center, and change the gate to near one corner, letting the walk continue parallel with the side fence for a few feet, then gently curving in a diagonal direction, and continuing in this course until a gentle curve in the other direction will bring it to the front step. Now, a close mass of shrubbery can be planted on each side of the gate, and next the fence, allowed to follow up for thirty or forty feet, and then, by planting a large specimen tree, a little farther back, and in a line parallel with the path, a large portion of that side of the grounds will be shut off from direct view of the street and a pleasant degree of privacy obtained, without in the least interfering with a plain view of the house from the street, which, should it be of any considerable architectural beauty, would be desirable.

This last walk would be the one which would best accord with the plan we have been considering, and with the addition of a geranium-bed in front of the parlor, would complete this side of the yard. This side, containing all the flower-beds, should be kept closely shaven with a lawn-mower, while the other side, which should be planted with specimen trees, singly, and shrubs in groups, need be mowed only two or three times in a season, and that with the scythe. If at any future time it should be deemed advisable to add any choice shrubs, they should be planted upon the points of groups already there, and not in the open vistas and clear centers of the lawn. The carriage-drive can be placed just outside the hedge, as there is neither necessity or room for it inside, in a place of this size. This will complete the plan presented, which is not proposed as a perfect one, but to bring out and illustrate the prominent features and principles of the art.

Returning to the subject of walks, it may be remarked that in very small lots, like many that are found in cities, straight walks may be desirable, and by placing the house to one side of the lot an unequal division of the ground can be obtained. I have, however, seen some very pretty curved walks upon some very small lots. The degree of curve which a walk should possess is important, and there is more danger of getting too much than too little. The ease with which the circle is laid upon the ground or plan, leads to its adoption frequently. It is too much curved to be graceful, and too regular to be beautiful; it is difficult to manage in planting, and exasperating to a person in a hurry. Where paths are left to natural causes for formation, they always take the most direct route. but are never straight, and a careful study of such paths will give a person considerable information in regard to curves, and especially those near the ends of walks. It should be borne in mind, at all times, that walks are constructed for bodies in motion, and that these bodies, whether animal or human, are subject to the same laws that govern inanimate matter; that is, they do not change their direction suddenly, and at once, like a soldier at right-face, but they require time and distance to do it easily.

A man passes out through a hall, over the piazza, down two or three steps, and gains thereby a certain momentum, which it is neither economical nor pleasant to change abruptly, for the purpose of turning to the right or left, but if he can have a few feet of straight walk and then change gradually, there is no loss of force nor jarring of machinery. Precisely the same laws reversed, govern his exit at the front gate. The placing of a flower-bed or pile of stones in the way of a walk, for the purpose of making the walk go around it, is a fault frequently to be met with, and it deserves the execration of all busy people.

But I have already exceeded my limits, and if I commence on the mistakes that are constantly being made, I shall weary rather than instruct. I cannot close, however, without a word of caution. It is easy to imagine a beautiful place; it is easy for many to buy fifty or a hundred dollars' worth of trees; the knowledge *how* to plant them is easily obtained; the knowledge *where* to plant them can be obtained, not so easily, it is true, but it is within the reach of most, yet there is something more than all this. When each tree is in its appropriate place, and the owner looks with satisfaction upon the work accomplished, his task is but half done. If he owns a good picture, he can hang it in a good light, keep the frame polished and the surface clean; or he can hang it in an obscure corner and let it become festooned with cob-webs and an abiding place for insects. So with his door-yard. The ownership of a well laid-out and expensively planted place entails constant care.

Taste in planning and cost in planting is valueless, if care and tidiness do not follow. You can carefully stock your ground with the best of lawn-grass; but without the frequent use of the mower it will become long grass before the summer is over, a shelter for mice and a nursery for weeds. Constant care is the royal road to success, and plant only what you can keep in order, is the golden rule of ornamental planting.

Mr. G. H. Miller expressed himself as glad this subject has been introduced; as it is the mission of this society to foster taste in planting. We can do much to educate public taste by our own example, in making our own places models of neatness. One important thing is to have a model, or picture in our own mind; and plant in reference to what will be the effect in twenty-five years to come.

Mr. Harrison remarked that he would plant more for present effect; as he might not live for twenty-five years.

Dr. Warder replied that others would live to enjoy the fruits of our labors, if we did not. Others had planted trees for our benefit, and it would seem right that we should do the same for those who would come after us.

Mr. Harrison thinks if we plant with reference to effects twenty-five years hence, we will have a long time of barren and unfinished appearance.

Mrs. Boyd thinks back-yards should especially be made pleasant and attractive. Many women live in houses which have pleasant front-yards, but their occupations are such that they rarely see them, and for years scarcely derive any enjoyment from them. Her husband has more care taken of the back-yard, and has it ornamented with flowers. She recommends, in planting flower-beds, that they should be more in accord with Nature; thinks we often make our flower-beds too precise and regular.

Mr. G. F. Newton thinks houses should be so placed as to be most pleasant for the family, and to produce the best results should face the east. This would give shade at the back part of the house in the morning, and at the front in the afternoon. If we should plant our grounds for effects twenty-five years hence, we would have very little at the beginning. He would plant for the present; and when trees and shrubs got too thick, thin them out. Shrubbery can easily be kept within bounds by trimming. Mr. Newton spoke of pruning the Pyrus Japonica to a single stem about six feet high, instead of allowing it to grow in its usual bush-form; as he treats it, it always blooms beautifully, and never becomes unsightly. He also described a Norway Spruce, about which he dug a circular trench and then bent down the lower branches and buried their ends in the soil of the trench. These branches have taken root, and formed the handsomest evergreen he ever saw. He recommends the Sassafras and Liquid Amber as beautiful and desirable ornamental trees.

Mr. G. H. Miller thinks, when planting, people should form an idea of what a tree would be when fully developed. He had seen Norway Spruce planted in door-yards much too small for their accommodation.

The Secretary remarked that an area of at least forty feet diameter should be allowed for a well-developed Norway Spruce.

The President announced the following Committee on Final Resolutions: G. H. Miller, of Norwich; W. W. Reed, of Canton; J. J. Harrison, of Painesville; Geo. W. Campbell, of Delaware; J. A. Matthias, of Enterprise.

On motion, adjourned till to-morrow morning at nine o'clock.

THURSDAY MORNING, *December* 9, 1880—9 O'CLOCK.

Mr. Julian made a verbal report upon the condition of the Pickaway County Horticultural Society. He regretted to have to report a declining interest in horticultural matters, and a difficulty in keeping up the meetings of the society by regular attendance. Their financial condition was good, with money in the treasury. He thought it would be well for some of the members of the State Society's ad interim committee to visit them and wake them up. Mr. Julian complains of bitter-rot in his orchard, and wishes to know if there is any remedy. Tulpehocken, Willow-Twig and Rome Beauty are all affected, with some others. It seems to spread from tree to tree in rows, and appears to be contagious. He fears it will destroy his orchard, unless it is checked in some way.

Dr. Warder hoped an effective remedy might be found. He would suggest that lime be spread upon the land, and hogs be turned into the orchard and allowed to root up the surface. This has been recommended and practiced with apparent success. In his orchard, Rawle's Janet is nearly the only variety that has suffered from bitter-rot.

A paper was then read upon the

FRUITS IN HOLMES COUNTY FOR 1880.

BY G. F. NEWTON, OF MILLERSBURG.

During the year now drawing to a close, the crop of fruits in this part of the State was not so abundant as on some former occasions, and yet it was a bountiful one, and in most instances, superior in quality. Small fruits are not grown so extensively here as elsewhere, but the larger ones, especially apples, compare favorably in quantity and quality with any county of the State. The following is a brief account ot our fruit crop for 1880, wth a synopsis of the apple crop during the last decade:

STRAWBERRIES

Are not extensively cultivated, but great progress has been made in that direction during the last ten years. It is not an uncommon thing to see growing in the garden of the farmer, and the owner of the village lot, a nice bed of strawberries, from which they obtain a sufficiency of the fruit for their own use. It is twenty-five years since I commenced the cultivation of the strawberry. My first plants were the Hovey's Seedling, with which I had very good success. Since then I have cultivated most of the popular varieties, and have found none that excel the famous Jucunda, and Seth Boyden's number 30. Two years ago last summer, from a single crown of the last-named variety, I gathered nine berries that aggregated nine ounces, besides a few small ones not weighed. These nine berries were not all gathered at once, but at three pickings. The largest of them weighed nearly one and a half ounces, avoirdupois—the smallest of them three quarters of an ounce. I have never grown berries for sale, but have given away thousands of plants, and, occasionally, a few fine berries. In this way I believe I have done much towards their general production.

The crop of strawberries was not so abundant nor the fruit so large this year as the two former ones, occasioned by the dry weather near the ripening season. They ripened earlier than I ever before knew them in this part of the State. I gathered my first ripe berries on the 22d day of May. A neighbor picked ripe berries two days earlier than I did. Some six or eight persons in this county are engaged in the cultivation of the strawberry for market, and have eight or ten acres of land devoted to their production. Foremost among them are, Messrs. Hoyer, Melott and Finney, all members of this society. They grow most of the popular varieties, and find a ready market for them at home, and in the counties of Ashland and Wayne.

RASPBERRIES AND BLACKBERRIES.

Until recently, large quantities of these delicious berries, of excellent quality, might be found growing wild in the fields and wood-lands. The gathering of the fruit frequently caused the wanton destruction of crops, and to prevent which the owners of the premises have in most cases destroyed the brambles. It is not uncommon, however, to see fine patches of the canes growing in the farmer's garden or other appropriate place, sufficient to produce enough berries for home use. The three gentlemen I have named as cultivating the strawberry for sale, also cultivate the raspberry, and find a ready market for them near home. I believe the Doolittle, Mammoth Cluster, and Gregg are by them considered the most productive and profitable kinds to grow.

GRAPES.

While the number of acres of land devoted to the vineyard in this county is decreasing, the quantity of grapes produced is constantly increasing. The former is caused by the want of a market for the fruit in its natural state; the latter is the result of farmers and owners of village lots planting a few vines and growing grapes for their own use. During the last decade, great changes seem to have been made in this respect. Vines grown in small quantities about the domicile and properly cared for, are less liable to disease than others grown in larger quantities in the vineyard. The vine is so easily grown, so productive, and coming into bearing in one or two years after planting, that farmers and every one else who have a place of their own, appreciate its merit and value, and grow the grape. The crop of last fall was an unusually good one.

PEACHES.

It is seldom we enjoy two crops of this delicious fruit in succession. In 1879 the peach trees set their fruit and gave promise of a full crop. Near the maturity, the peaches commenced rotting on the trees, and the crop became a failure. This rotting of the peach on the tree is becoming a fatal malady in this locality. Near maturity the crop showed signs of rotting this year, but, fortunately, it was not so fatal as last year, and the crop of 1880 was nearly equal to that of 1878—about 50,000 bushels. One gentleman with whom I am acquainted, R. F. Gray, Esq., had over one thousand bushels, most of them seedlings, and, strange to say, they were all fair to fine in quality. Some years ago he selected the seeds from isolated trees that bore good fruit, and many of his trees produced peaches true to the kinds planted.

PEARS.

Of this excellent fruit little is grown here. Some ten or twelve years ago, many of our people became interested in the pear, and a large number of trees were planted—the sellers guaranteeing the trees would not become affected by blight. In a very few years after planting, these trees received a severe visitation of blight, and most of them died. The blight continues from year to year, so that few pear trees are planted. In the best of seasons, our entire crop does not exceed a thousand bushels.

APPLES.

This is our staple fruit crop, and, in the production of which, our little county will compare favorably with any of her sister counties of the State. In advance of the returns to be made by the assessors, after some painstaking, I am able to give a tolerably correct estimate of the apple crop of this county for 1880. The number of acres of land devoted to the production of apples is very nearly 5,000. The aggregate production of the fruit was not less than 440,000 bushels, of fine quality. The prices paid for green apples rule so low that not over 50,000 bushels of this large crop will find its way to market in a green state. The residue of the crop is dried, made into cider, fed to stock, consumed by the grower, or left to rot in the orchard.

For the last ten years the increase of the apple crop of this county has been enormous, as will be seen by the following table. All we need to make apple-growing profitable, is a better market. I give below the number of acres of land planted with apple trees, the aggregate quantity of fruit produced each year of the decade, ending with the crop of 1880:

Year.	Acres.	Aggregate crop.	Year.	Acres.	Aggr crop.
1871	3,900	390,500	1876	4,650	510,000
1872	4,000	280,000	1877	4,700	35,500
1873	4,150	190,500	1878	4,750	670,000
1874	4,400	200,000	1879	4,800	43,000
1875	4,550	10,500	1880	4,900	450,000
			Total crop		2,780,000

It will be seen by the above that during the decade, the product for the year 1875 was the smallest, being but 10,500 bushels, and that of 1878 the greatest, the crop then being 670,000 bushels. In computing these estimates I have not been wholly guided by the assessors' returns, which I find to be very incorrect. Where errors of importance occurred I corrected them, and have given the estimates in round numbers, or nearly so. It will also be seen that the average yearly production throughout the decade is 278,000 bushels. Throughout the same decade the smallest yearly production of peaches is 56 bushels, and was in 1875. The largest production was in 1878, when we had 50,500 bushels of peaches.

The committee on nominations for officers of the society for the ensuing year then reported as follows, which report was accepted:

For President, Dr. John A. Warder, of North Bend.

Vice-President, Nicholas Ohmer, of Dayton.

Secretary, George W. Campbell, of Delaware.

Treasurer, Leo Weltz, of Wilmington.

Ad Interim Committee—G. S. Innis, of Columbus; J. J. Harrison, of Painesville; G. H. Miller, of Norwich; G. W. Trowbridge, of Glendale; J. K. Niesz, of Canton.

Dr. John A. Warder was also appointed Vice-President for the Mississippi Valley Horticultural Society, in behalf of the Ohio State Horticultural Society.

The President then announced that open nominations were in order, and that any person was at liberty to make additional nominations to those named by the committee.

A paper was then read upon

PICKING, KEEPING AND MARKETING APPLES.

BY G. F. NEWTON, OF MILLERSBURG.

> "Where some men find thorns but to torture the flesh,
> Others pluck the ripe fruit their souls to refresh."

A very important matter connected with the growing of apples is their preservation. A fruit so beautiful and palatable for dessert, so healthy and convenient for culinary purposes, justifies much painstaking to preserve it for future uses. Having previously given some directions concerning the planting and cultivation of the apple-orchard, I will now give briefly a few plain directions for taking care of the fruit. Two methods are commonly practiced, neither of which are commendable. One is burying the apples in the ground; the other, spreading them on racks or shelves in a cellar where vegetables and other articles are kept during winter. If we adopt the first of these methods, and bury the fruit in the best possible manner, its rich aroma and delicious flavor is destroyed and a musty, earthy taste and smell take their place. Its keeping qualities are also destroyed by the mellowing process that is going on during its confinement in a close warm bed, and visible rot takes place soon after it is brought to the air and light. If we adopt the second method, the result is no better—probably worse. The fruit not only loses its flavor, and becomes tainted by the vegetables and other noxious articles kept in the same apartment, but also becomes diseased; the warm, foul air causing a breaking of the granules, and rot sets in, or the apple wilts. In either case the fruit becomes worthless, and must be thrown away.

The first thing to be considered, is a suitable place for keeping the fruit. To be brief, I will say: A properly constructed cellar, used for no other purpose, is the cheapest, most convenient and best place in which a farmer or the ordinary fruit-grower can keep his fruit. In such a place, with but little trouble, apples may be kept sound and fresh until the next year's crop is fully ripe.

If possible, the fruit cellar should be under the north part of the house. It should not be very dry nor very damp. The walls and ceiling should be lathed and plastered to insure a uniform temperature. It must have windows or ventilators to let in cold air when needed. If the bottom is not perfectly hard and dry, it should be covered with lime cement, sufficiently thick and strong to admit the rolling of barrels over it without breaking the cement. Its entrance should be from the outside, at which there must be outside and inside doors to keep out the frost or heat. A window should be constructed in the inside door to let in light and air, and arranged to be opened and shut at pleasure. The cellar must be kept scrupulously clean. When the family cellar will admit a portion of it being used for apples, it must be divided by a brick, plaster, or close board-wall—the former is preferable. The additional expense of fitting up a cellar fourteen or fifteen feet square, in the manner I have designated, need not exceed twenty dollars. In a cellar of that size, two to four hundred bushels of apples may conveniently be kept. They may be stored in barrels or boxes, piled one above another to the ceiling, or put in bins. I prefer the bins, because I get double the quantity of fruit in the same space. If bins are used, they should be two and a half feet broad, and extend the entire length of the walls. The bottom should be within eight inches of the cellar-floor, and made of narrow boards laid half an inch apart to let the air pass upward. The boards for the sides should be arranged to be put up and taken down as the apples are put in or taken out. The bins may be partitioned so as to keep each variety separate, and filled as high as a man can reach. If apples are properly handled, and put away in large quantities, the ripening process does not go on so rapidly as if in smaller lots—they aid each other in keeping fresh and green, and therefore keep longer. I have put over a hundred bushels in one bin, and kept them until spring, with scarcely any of them rotting.

WHEN AND HOW TO GATHER THE FRUIT.

One of the most important matters connected with apple-growing, is the gathering of the fruit at the proper season. It is a well-known fact that well-grown, perfect apples keep the best; therefore, none but perfect fruit should be gathered for storing away. The time for doing so depends upon circumstances. Early varieties, intended for home use, or near market, should ripen on the tree. If, for shipping a considerable distance, they may be gathered and packed as soon as fully matured—they will ripen while in transit. The short time allotted to the development of summer apples, and yet shorter period they are in season, necessitates this practice. Not so with winter varieties; they are longer in maturing, and by proper management may be kept a yet longer period in season. Maturity is an entirely distinct feature, or state in the apple, to that of ripening; though they are frequently confounded. The former consists of increase of substance, in size, and density, or both; the latter is the softening or declining period of its existence. When the first state ends, the latter necessarily begins, unless prevented by artificial means. After the apple matures, heat causes it to ripen. It breaks up the granules of the fruit, produces evaporation of its fluid, and, at a certain period in this stage, visible decay commences. If this be true, the proper season for gathering apples for keeping is, as soon as they mature. My own experience is, that early-gathered apples keep better than those gathered late. As I have said, heat produces evaporation, and to prevent which they must be kept at a low temperature, as near to 32° Fahrenheit as possible. Another advantage resulting from early gathering, is the retention of coloring matter, a portion of which evaporates, should the apples remain on the trees until late in the season. With early-gathered apples, if confined in barrels, or close boxes and kept cool, the evaporation of color is prevented as well as the destruction of the granules, and the fruit when taken from its place of confinement is brilliant in color and superior in flavor.

The finest lot of apples I have ever seen, were of the crop of 1878, grown by Mr. Daniel Duer and myself. They were gathered in September, and taken to the barn as gathered, and put in heaps on the barn-floor, where they remained until the commencement of cold weather; they were again carefully assorted and put in close barrels and kept in a cold cellar, the temperature of which was so low that the fruit did not sweat in the barrels. When opened in the spring, they were as sound as when put away, and possessing the richest aroma and brightest colors I ever witnessed in apples. In this way we kept King of Tompkins County to April and May; Rambos and Peck's Pleasant until July, and some late-keeping varieties until October. The ventilators to the cellar were opened in cool, and closed in warm weather.

The last half of September usually is the most appropriate season for gathering winter apples. Before picking is commenced, a suitable place or places should be prepared for the temporary storing of the fruit. As picked, they should be put in quantities in the orchard, well secured from the sun and rains, or taken to a cool barn or out-house, not infested with rats, there to remain until disposed of or put in the cellar for winter. While picking, use oval-shaped half-bushel baskets lined with thick paper. The baskets may be kept on the arm, the step-ladder, or both, as convenience may require. It is to be presumed the trees are all grown with low heads, so that most of the fruit is picked while standing on the ground or step-ladder. My longest fruit-ladder is twelve feet long, wide at the bottom and narrow at the top. It is easily run up among the branches of the tree, and always stands safely. When it becomes necessary to go up into the tree to gather apples, the picker, while doing so, should wear gum shoes—much damage is often done to the branches of trees by going over them in heavy boots or shoes. All winter apples should be hand-picked

—no shaking down and picking up—the fruit must not be bruised. In some varieties, the bruises partially dry up, and it is said by some persons, the fruit sustains no injury. Such is not the fact. Every bruise is a nucleus, or starting point for decay. Hence, the importance of picking and handling fruit carefully. While picking, every imperfect apple coming into the hand should be dropped, and when the basket is full, empty them carefully. Continue the picking, in dry weather, until done. Apples should not be gathered while wet, nor should straw or leaves be put about them to keep them warm; they must be kept cool and dry. If left in the orchard while picking, cover with boards sufficient to protect them from the sun and rain.

On the approach of cold weather, the apples must be removed from their temporary storing-place to the cellar. In doing this, not a leaf nor a straw should go in the barrel or bin with the fruit. They draw dampness, and, decaying, cause the apple to rot also. All imperfect fruits should be kept out of the cellar, or put by themselves for immediate use. After the fruit is in the cellar, open the ventilators at night and close them in day-time, excepting in very cold weather, when all must be kept closed to keep out the frost.

PACKING AND MARKETING.

We have already learned that "whatever is worth doing, is worth doing well;" therefore we should continue with vigilance and care to the *finale* of our occupation, that we may reap the pecuniary reward of our labor—the labor and patience of many years. The fruit-grower who lives near a market where he can sell his fruits in small quantities, as they come into season, experiences little inconvenience in marketing them. It is for the grower who is compelled to send his fruit hundreds of miles to obtain a market, that this part of our subject is especially designed. Apples being heavy and bulky, to ship them long distances must be securely packed in strong packages. Experience has taught us there is nothing more appropriate for this purpose than barrels. There is much in the manner of packing the fruit, which is worthy of consideration.

When packing for market, I am not particular about using new barrels, but prefer them if they can be obtained at fair prices. Old barrels are as good as any, provided they are sound and well-hooped. If old barrels are used, they must be perfectly clean on the inside. In old or new barrels, the middle hoops must be nailed to keep them from slipping down, and the nails must be hammered down on the inside, otherwise they will damage the fruit. When packing, select a half bushel of smooth apples of uniform but medium size. With the hand place a layer in the bottom of the barrel, fitting them closely together and laying them stem down. Now place a row around the side of the barrel, with the stem next the staves, then fill up the centre closely, like the first layer, but with the apex down, after which they may be carefully poured in from the measure. When the barrel is half full, shake it a little to settle the apples. As it is filled, continue to shake the barrel, giving it sharp raps on the floor, which packs the fruit closely together. Put no inferior or little apples in the barrel, and if any are extra in size, let them go in the centre. When full, level it up with the small apples, making the top row half an inch above the top of the barrel. Loosen the top hoops, lay on the head, and, with a screw or lever-press, force it down to its place, tighten the hoops, remove the press, put on the top hoop and nail it fast. Nail small cleats around the inside of the staves to keep the head in. Now turn up the bottom end of the barrel, mark it for the top, with the name and quantity of apples, being careful to give good measure.

If apples are to be shipped during winter, the barrels should be lined with paper. There is a thin, fine, tough, brown paper, in sheets of the proper size, that may be obtained cheaply, and which is preferable. When lining the barrels, touch the inside of the staves in spots with a little paste, put in the paper and press it against the staves; the paste will keep the paper to its place while packing the fruit. Should the weather be very cold, it is well to use an additional thickness of paper, which may be put in as the apples are packed—old newspapers answer as well as any. Be careful that no part of the wood comes in contact with the fruit. When packed in this way, and the barrels kept dry, apples may be shipped hundreds of miles in cold weather with safety.

On one occasion I shipped twenty barrels of apples to a customer during the holidays. The weather was mild when I shipped the fruit, but fearing it might become cold, I lined each barrel with two thicknesses of paper. While in transit, from mismanagement, they were detained two days and nights on the railroad track, after which they found their destination in a few hours. The second day they were in transit, the weather changed to cold, and the mercury went down to 12° below zero. There was no fire in the car, and yet they went through safely. When the dealer acknowledged the receipt of the apples, and sent a draft for the pay, he said: "I have been dealing in apples for fifteen years, but I never knew how to pack apples until receiving this lot." It was the first shipment I had made him, and he continues to buy most of his apples from me when I have a crop of them. After getting a customer, I seldom lose him, unless he goes out of the business. Before closing this subject, I will relate another circumstance; I do so for the purpose of showing the advantages to be gained by a correct system of packing and shipping the fruit. Some years ago I shipped a few barrels of apples to friends in Eastern Pennsylvania. They were consigned to a fruit-dealer. On the arrival of the apples, the owners were notified, and the dealer went with the fruit to see how it looked. He immediately sent me an order for fifty barrels of apples, saying: "I will pay you your price for them, provided you send as fine apples as you sent your friends. I was present when they were opened, and I never in all my life saw apples come out of a barrel in such fine condition." He said, "why, the best apples were in the middle of the barrel. For years I've been buying apples in New York, and I generally get the little ones in the middle, and sometimes nothing but trash." If my experience shall prove beneficial to others, I shall be fully paid for writing this article.

Mr. Julian, of Circleville, has heard that dampness has been successfully utilized for keeping apples, by flooding cellars with water and placing the apples in barrels upon blocks above. He wishes to know if this is the best way. He had been accustomed to think a dry atmosphere was preferable, or necessary for keeping apples. He spoke, also, of the Cope patent process—having a keeping-house of that kind. He was not entirely satisfied with its performance. He had never had any freezing of apples in this house; but he had been unable to keep it cool enough in a warm or open winter.

Col. G. S. Innis remarked upon the proper time for picking apples. It was a general impression that the best time was just after the first frosts. He has found that when healthy apples of any kind begin to fall from the tree, then was the best time to gather them. He commended Mr. Newton's remarks upon fair and honest packing. He had often received apples which were good at the top of the package, but very inferior below.

Mr. Ohmer spoke of Mr. Newton's paper as admirable, and agreed with him in all respects. Reprehends the practice of putting the best on the top, and inferior ones in the center. Fruit honestly put up finds a ready market. He could not add anything to the paper of Mr. Newton.

Mr. Newton spoke of himself and his neighbor, Mr. Duer, having shipped over 700 barrels of choice apples; but the *railroads got all the profits!* He rarely sends to commission merchants; but as he has no large home-market, is obliged to seek other outlets. He finds a cellar too damp, not advantageous in keeping apples. Had a lot of Keyser apples which were kept in a damp cellar that became spotted and injured in the skins after being packed. He recommends that if apples are buried, they should first be barreled.

Col. Innis asks if covering with saw-dust would not do?

Mr. Newton replied that apples were more apt to be musty when so covered. He does not approve of putting apples on shelves. They get *too much air*, and are likely to shrivel. He had heard of packing in dry cement; and that some apples had rotted and *cemented.* He would cement the inside of the barrels, pack the apples when dry, and then cement the outside; and believes that apples would keep a very long time if thus treated.

Mr. Ohmer keeps apples late, in his fruit-house, for making cider, by covering with hay. This year they have frozen, and thawed and become soft; while those in heaps in the orchard, lightly covered with snow, though exposed to very cold weather, were very little injured—only a little on the outside. The heat rising from the ground saved them.

Mr. Julian keeps his apples in bushel boxes. He can pack them close, and finds it to possess many advantages both in handling, keeping, and facility of examination. The bottoms and sides of boxes are made of plastering lath, sufficiently open to admit air, and cut half the length of the lath. The end-pieces are of common inch boards 10x12 inches. He finds them of great convenience in picking over, in case any are decayed; much better than large boxes or bins, in bulk. Uses those boxes both in cellar and in fruit-house. For the latter, double the length, with a partition in the center. The cost of the small boxes, holding a bushel, is not over 8 cents.

Dr. Warder says the same method is adopted for the storing and keeping of pears in and around Boston.

Mr. Pierce has found square bushel boxes very convenient for marketing potatoes, apples, and other fruits—packing closely in the wagon, and saving much trouble in handling.

Mr. Crawford has packed apples in dry saw-dust, and found them to keep well; but in damp saw-dust they were all spoiled.

Dr. Warder objects to saw-dust packing on account of imparting a bad or musty flavor to the fruit.

Mr. Harrison has found *Baldwin* apples to keep well, packed in gypsum or land-plaster.

Mr. Reed was much pleased with the essay under discussion. In reference to picking apples, he was governed by their time of ripening. He would gather them before they began to fall in any considerable quantity. Agrees in recommending boxes for carrying fruit to market, and finds it just as easy to pick in boxes as baskets. Has his boxes made to hold *full* measure so that his customers do not wish to have fruit re-measured. Tried oak saw-dust on ten or fifteen barrels of apples. Those packed in dry saw-dust retained their flavor very well; while those in green saw-dust were entirely destroyed. He had found *Newtown Pippins*, packed in dry sand, the best of all. The only objection was the great difficulty in getting the sand off the apples.

Dr. Warder said in reference to wet cellars, a happy mean between drouth and moisture is what we want, to prevent evaporation of the juices. He spoke of the Nice fruit-house; said some fruit-houses are reported to be failures; but he thinks failure has generally resulted from neglect to use them properly.

Mr. Campbell read a letter just received from W. H. Ragan, Secretary of the Indiana Horticultural Society, paying the following handsome tribute to the memory of our late Secretary, M. B. Bateham:

CLAYTON, IND., *December* 6, 1880.

George W. Campbell, Esq., Secretary Ohio Horticultural Society, Columbus, Ohio:

MY DEAR SIR: Although the circumstances resulting in your promotion to the office of Secretary of your State Horticultural Society are sad in the extreme, I desire to congratulate you, and especially the society you serve, in your election to fill the place so long held by your lamented predecessor. It was my good fortune to have enjoyed a long and pleasant personal acquaintance with Mr. Bateham. He was eminently fitted for the honorable positions he so long and so faithfully filled, and now that he has passed from amongst us, I can truly and sincerely add my humble tribute of respect to his memory. His loss will long be felt, and his memory cherished by his fellow-horticulturists.

In behalf of our society, I trust that you may have a profitable and enjoyable meeting this week, and that you may be able to send a liberal delegation to meet with us on the 21st, at Crawfordsville.

Yours, very respectfully,

W. H. RAGAN, *Secretary.*

The following valuable and interesting paper was then read upon laying out and planting

RURAL CEMETERIES.

BY DR. JOHN A. WARDER, OF NORTH BEND.

A recent meeting of the Cincinnati Horticultural Society was held by invitation at the beautiful cemetery, Spring Grove, near that city, at which the early history of that Association was referred to, and the fact was stated that its origin was due to the action of the Horticultural Society of that day. Nor have the members lost their interest in the cemetery, which, with the aid and support of the citizens, has grown to its present importance. Although the first to adopt the open park style of landscape-gardening, which has been so successfully carried out that it has become the model cemetery of the land, and has been highly complimented by visitors from abroad, and its features cited as worthy of imitation in other countries as well as in America. We have seen, in the course of a few years, the importance of employing skilled workmen in preparing the plan for such a park as has here been produced, and also the necessity for a thorough knowledge of the future growth and appearance of the various trees and plants used in decorating such a place; in other words, a thoroughly educated landscape-gardener. Now, while there be many who may claim this title, it is unfortunately true that few are deserving the name, as must be manifest to any one who has observed the many instances of bad taste in attempts at such works, both public and private, and especially conspicuous in some of the burial cemeteries of our country.

The plan, in every case, should be adapted especially to the ground and its surroundings. No single plan is likely to suit any other spot than that for which it was designed, and a servile copying would be very tiresome. Many of the blunders committed by those who attempt to plan our grounds have arisen from their paucity of ideas, their lack of taste, and their ignorance of landscape-gardening. Then, again, through deficient knowledge of the characters of the plants introduced for ornamentation, grave errors are often committed which become painfully evident when too late to correct them.

Gross mistakes are frequently apparent, arising from this and other causes, even where abundant means have been expended, or rather squandered, through lack of taste and knowledge on the part of those to whom the work has been intrusted.

From the first designing of the plan and arrangement of the ground, the essential element of success is good taste, which should never be lost sight of; and though such work is necessarily artificial, it must be in closest harmony with Nature, Similar views must have been shared by Shakspeare, when he penned the lines, often quoted, but ever new and ever true:

> —— "This is an art
> That does mend Nature." Change it rather, but
> THE ART ITSELF IS NATURE.

The range of landscape-gardening is great; on the one hand, it descends to the planning of the limited door-yard of a village or city lot, to the arrangement of the farm-house and its outbuildings, with the location of the lawn, garden and orchard; to the planting and ornamentation of the railway station, or to the planting of avenues along the highways, and on the other, and in greater works, it extends to the broader area of the village improvement, of the rural cemetery, or to the extended limits of the great park.

Landscape-gardening has, indeed, a wide scope, and requires an extensive knowledge of many things. It embraces a familiarity with architecture to enable the artist to direct the construction of suitable buildings, gateways, bridges, terraces, arches, kiosques, obelisks, pavilions and other ornamental structures. It requires, as its fundamental basis, the ability to design and to direct the execution of the earth working, the arrangement of the land and water generally, and especially the drainage of the soil, and the management of the resulting fluid which is to form rills, cascades, basins, lakes and fountains.

It necessitates accurate surveys for all this, and also for locating the drives and walks, with their thorough construction, so that they may be of easy grades, smooth and dry; thus it appears that some knowledge of engineering is requisite.

Grass, in a smooth turf, is an essential requisite in all landscaping; to secure this requires a knowledge of the kinds best adapted to the various soils and of the treatment most conducive to the perfect verdure and condition of each.

Trees and shrubs, singly and in groups, claim a high rank in the *materiel* of the landscape-gardener; for their proper selection and disposition, it is essential that he should be perfectly familiar with their requirements as to soil and management, as well as with their habit, form and outline, their relative size and height at maturity, as well as with the peculiar tint and disposition of their foliage, whether deciduous or evergreen. These remarks are especially applicable in relation to the trees that may be set singly, to display their future beauties and grandeur, whether in the open spaces of the grounds, or in the broad, umbrageous avenues, that may be introduced with fine effect in parts of an extensive park, or its approaches. But who shall venture to make the selection, unless perfectly familiar with the history, past, present and prospective, of the several species of trees to be planted, and with their perfect adaptation to the soil in which they are placed, and their accordance or otherwise with the surrounding scenery of rocks, mountains, forests and brooks, or with the broad, grassy plains and quiet waters of the lowland regions.

The same judgment required for the selection of single and avenue trees, will be needed in the choice of those trees and shrubs that are to be planted in groups and copses; the prospective size of each species must be known beforehand, their forms should harmonize with one another, even their peculiar hues and the characters of their foliage should correspond with others of the group or part of the group, and where strong contrasts are desired in the way of an agreeable surprise, the knowledge and forethought of the planter will be taxed severely to secure the desired happy result. Then again, he must know how to group together those species that are socially agreeable to one another, for trees, like human beings, have their likes and dislikes, and have been classed accordingly, as those that are *consociate* and *dissociate.* Nor should the evergreen conifers ever be mingled in a plantation of this kind, with the broad-leaved deciduous trees; when such are combined in groups, they should be arranged in masses of like kind, each distinct. This separation is not so necessary with some of the broad-leaved evergreens, that may succeed remarkably well as undergrowth beneath the partial shade of coppice-wood, and in such situations they also produce a very pleasing effect both in the summer and in the winter landscape.

While speaking of evergreens, especially the commoner kinds of pines, spruces and junipers, this warning may be given: Let the landscape-gardener beware of the rock upon which so many have made shipwreck, by planting too largely of this class; as they will give a somber aspect and a gloomy sense to the whole outlook. In their proper place, and even in large masses, if relieved by groups of deciduous trees, however, the evergreens are invaluable factors in landscape-gardening Their peculiar beauties are most highly appreciated in the gloomy months of winter, and, when bedecked with snowy wreaths, they are especially attractive; then also, their protective influence is most highly appreciated by all.

When planted singly, or in open groups, evergreens should be trained in such a manner as to preserve their lower branches. In most species this may easily be accomplished, for the first half century at least, by an occasional shortening-in of the higher branches, which should not be allowed to extend beyond those below them. The aged centenarian tree makes a noble object when rearing its broad flat top on high, supported by a tall, clean bole, devoid of limbs; not so the graceful young sapling, with its conical top aspiring skyward, the branches of which should nestle upon the ground, from whence it should rise clearly and distinctly in the plentitude of its adolescent beauty and strength.

This, however, is not the universal habit of all the conifers, some of which are more massy and umbrageous, even in their infancy; but the firs and spruces are usually conical in form, and this character may render them too formal unless they be judiciously planted and properly managed.

In the extensive forests of Northern Germany, where whole tracts of these species exist, one may have a fine opportunity for observing their characters. The younger plantations especially, present the most weird-like and ghastly appearance when seen at night or in the winter season, snow-laden; but, crowded together in dense forests, this class of trees, though deeply interesting, are no longer the beautiful objects we desire as ornaments to the quiet scenes of the landscape-garden.

Flowers and flowering shrubs, flower-beds and shrubberies, will claim the attention of the landscape-gardener, and the smaller the space he may be called upon to arrange, the greater becomes their importance and usefulness. Indeed, in large areas, and especially in cemeteries, their introduction should be restricted to the most narrow bounds and confined chiefly to the immediate vicinity of the entrance. Their scattered use through the grounds must be considered in bad taste, and too often their shabby condition renders them obnoxious rather than otherwise. Wherever flower-beds are permitted, they should be artistically arranged, most judiciously selected, and thoroughly tended by a professional florist. Their perfection is the requisite to their success, and this demands a perfect knowledge of the plants employed and of their requirements.

Thus you will see, that the office of landscape-gardener is one of no limited requirements. He who undertakes these tasks must be a man of extensive knowledge and broad views; he should be well advanced in all that relates to good taste; he must be a practical engineer and architect; he should have a thorough knowledge of the botanical characters of plants and trees. He needs to be an artist, an architect, an engineer, a farmer, a forester and a florist, all in one.

The modern rural cemetery is essentially an American idea. It is important that we should begin right. and so execute our plans as to keep within the pale of strict good taste. We have emerged from the terrible barbarism and desolation of the forlorn burying-grounds of the past, many of which, but for the neighboring church, were liable to be mistaken for the potter's field, and intended only "to bury strangers in." Therefore, in our advance, we must be the more careful to avoid the risk we incur of introducing barbaric splendor into these last resting-places of the dead. The first and simplest attempts at improvement of the old burying-place should be encouraged, be they only the planting of the commonest evergreens in regular rows and squares like an orchard. These efforts show at least a desire for improvement, and in an old, long used village burying-ground, this is often the utmost that can be accomplished, and should be accepted as the earnest of further advances yet to follow.

The old church-yards, in this country, as in Europe, once furnished the ground and the protection for burying the dead. With their limited areas, but a few generations were required to fill them to repletion, and they were necessarily abandoned. These sacred spots are filled also with associations of the past. The venerable yews have been subjects for the poets' muse. From these old yews and box trees, which have no equals on this new continent, we may learn the value of the smaller evergreens as sacred memorials, where space is limited. There are many other species of similar proportions that may be utilized in this way.

The graveyards of Southern Europe present us illustrations of the effect produced by planting them with the Funebral Cypress, which is there so universally employed as to become the conventional graveyard tree. These are so stiff and formal that they serve as exemplars to be avoided, rather than patterns to be imitated in our rural cemeteries, for, indeed, we are in danger of committing a parallel blunder, by seeking substitutes for the conventional cypress, which is not hardy in our northern climates; we select the erect forms of the yew and the juniper, which are equally stiff and formal, and have but the one recommendation, that they require little space.

In our growing country, with its thriving villages and embryo cities springing up everywhere, many of them rapidly assuming metropolitan proportions, new grounds for interment are needed—here is the place for the rural cemetery.

How important that these should be judiciously located, carefully planned and laid out in good taste. The field is open before us to mould it as we will; how desirable, then, that our work be well planned and judiciously executed. Let us see to it, therefore, that we secure the best available talent in the landscape-gardeners we employ to plan and to execute the future rural cemeteries of our land.

These grounds are intended to be the quiet resting-places of our departed friends. The following desiderata should ever be kept prominently in the foreground of all our plans respecting their arrangement, management and occupation:

1. There should be perfect security and permanence in the title, and against intrusion.
2. Insuring peaceful quiet and perfect repose to all who may be brought within the sacred limits.
3. The landscape should embrace a diversified surface, of land and water.
4. The area should be covered with green turf in broad stretches.
5. Shaded by umbrageous trees, singly distributed at intervals, or in open groups.
6. And reaching on either side to masses of foliage of differing hues, deciduous or evergreen, according to the situation. The outside boundaries should be concealed by these, and, at the same time, from various commanding eminences, open and unobstructed vistas across the demesne and to distant objects of interest, should be carefully preserved.
7. Easy access to all parts of the grounds should be provided by smooth, hard roads and paths, kept in perfect order.
8. Of all things and above all, we should enjoin severe simplicity and strictly good taste, in the decoration of the graves, and the mementos offered to the dear,

departed ones. No senseless gew-gaws, nor purse-proud memorials, nor gilded tombs; no transitory and faded floral offerings should here find place; equally inappropriate are the gaudy parterres of transitory-blooming and foliage plants, that are too often seen obtruding themselves upon the sacred limits of God's acre. These may have been bestowed by weeping and loving friends, whose tender sentiments are entitled to our sympathy and respect, but all these things are so perishable, that they soon become an intrusive and decaying offense upon the quiet sanctity of the place.

9. In the modern rural cemetery we want no selfish, repellant and obtrusive fences as enclosures to our lots, ever decaying and ever reminding us of the egotistic claims and pretensions of individuals, in this common meeting-place of rich and poor, where all of us, from the highest to the lowest, are at last reduced to a common level, and to a condition in which there is and should be no respect of persons.

10. Lastly, and in connection with the sentiments already presented, as appropriate accompaniments and conditions of the sacred precincts of the cemetery, let us carefully avoid another great danger that is incurred in our desire to pay due respect to the memory of our dead; let us avoid making such a sacred spot appear to be only one vast advertisement of the stone-cutter's thriving trade. * * * Instead of this constant repetition of granite and marble shaft and obelisk, of pretensious mausoleum or cenotaph, some persons will prefer to place a mass of native rock, partially faced for an inscription. Others again will prefer to mark "the spot most dear of all the earth beside," by planting a memorial tree to mark the last resting-place of their departed friends.

The selection of the species to be planted for such a purpose, will be governed very much by the size and situation of the lot, and also by the character of the soil. Such trees should always be of permanent or long-lived species. Where space permits they may be of large and noble kinds, such as the oaks or elms; the former will ever be favorites for such a use. In low grounds and near water, the weeping-willow (*Salix babylonica*) has ever been a favorite funeral tree, but, though poetically affiliated with the tomb, few trees are more unsuitable than this foreigner from a milder climate, because it is short-lived and easily broken by storms; the Wisconsin weeping-willow is likely to supersede it entirely, so soon as it becomes known. For smaller lots, we have many trees and shrubs that are admirably adapted to the purpose.

You may, perchance, think these ten propositions demand too much for the modern rural cemetery. This may be so, and a previous generation might have been shocked by some of the positions assumed; some tender hearts of the present decade may possibly be startled by what they deem innovations; but, we are progressing. Who now desires to be embalmed after death and stowed away, even in a pyramid of Titanic proportions like that of Cheops or Cephrenes, on the Nile? Who asks to be thrust along side the preceding generations, into the catacombs of Rome or Paris, or even seeks to be interred in the crowded church-yards beside the old cathedrals of Europe, much less beneath the tiling of their floors? Even the historic and almost sacred precincts of Westminster Abbey present few attractions as a burial-place for us. With strong, good sense, the American people, in the light of sanitary science, have forbidden interments in such places, and, indeed, with municipal corporations the use of the graveyard of the past is no longer permitted.

The rural cemetery is everywhere popular, and in this we may observe progress. Nor are the requisitions set forth in the ten propositions here recited a mere fancy sketch; they are, indeed, to a great extent, a portrait of what already exists in our own land. You may all see it for yourselves if you will visit Spring Grove Cemetery, at Cincinnati, Ohio.

Mr. Crawford spoke of the expense, labor and difficulty in making a good turf, or lawn. He had found a very good way of accomplishing this desirable object without the expense of laying sod closely upon the ground. He first grades the ground carefully, then chops up sods into small pieces, about three inches square, and plants them in, regularly about a foot apart, pounding them down and making all even. The ground is soon covered with grass in this way, at little expense. He keeps out weeds with the hoe until the bits of grass have grown and massed together. Lawns may be entirely covered with earth to a depth of two or three inches, and the grass will come up through it.

Mr. Weltz commended the paper very highly. Says every cemetery, every society, and every county should have it. In his experience, he had found great difficulty in keeping people from planting Norway Spruce and large-growing evergreens on small lots; and in preventing lot-owners from the practice of decorating too much.

Dr. Warder said Mr. Weltz was too modest to do so; but *he* would advise people to go to Wilmington and see a cemetery which has been laid out and planted by Mr. Weltz. For cemetery planting he would recommend *Junipera compacta*, and similar trees. When large, unsuitable trees are planted by some persons, others will wish to follow the bad example, and this difficulty we always have to contend with. As much lawn as possible should be kept; but few trees on the lots. Trees should be used only for contrast and ornamentation, through and around the grounds.

On motion, the meeting of the society adjourned till 2 o'clock P.M.

AFTERNOON SESSION—2 O'CLOCK P. M.

On motion of Col Innis, Chairman of the Business Committee, the election of officers was postponed, and made the second in order, and following the reading of the paper by Mr. Edgerton.

Dr. Warder announced a telegram from the noted entomologist, Prof. C. V. Riley, stating that he will be with us this afternoon.

The following paper was then read upon

THE PROGRESS OF FRUIT EVAPORATION, AND ITS BEARING ON HORTICULTURE.

BY JAMES EDGERTON, OF BARNESVILLE, OHIO.

Fellow-members of the Horticultural Society:

In thus appearing before you, I wish to apologize for the clumsy manner which I shall present, as it is out of the common order of things for me so to appear, but will try to offer a few observations for your consideration relative to this new industry, believing, as I certainly do, that it is a very important subject, and one that very intimately concerns every cultivator of fruits and vegetables.

Dried fruit has long been known as an article of commerce as well as of home consumption, and various methods were adopted for drying, perhaps the most primitive of which was passing a cord through the centre of the pieces and suspending them in the chimney-corner, where the heat, smoke and soot would by and by complete the process of drying, and give us a product possessing a dark color and a strong, pungent taste, due to the caramel or burnt sugar which was developed during the process.

Next came the plan of spreading the fruits on boards or racks in the sun, where, by the aid of sunshine, flies, wasps, etc., they were deprived of their watery ingredients, which afforded a product little different from those of the former method. A considerable part, however, of the best of the fruit was extracted by the flies, etc. Then came the kiln, made of mud and brick, or stone, where the fruit was spread for drying or burning, as the degree of heat which was employed would produce, and this was called drying, while it was really manufacturing caramel. And many of us can remember, in dried peaches, the hard cake of burnt crust in the centre of each piece.

Next came the age of dry-houses, and these were quite various, from very primitive to those more costly, possessing considerable drying capacity; but it was reserved for a very recent period to perfect the modern evaporator—a contrivance by which we can very rapidly and effectually expel all the water from the fruit, etc., while we retain the substance, flavor and aroma for future use. Then, by replacing the water, we restore the fruit to the nearest possible approach to the condition in which nature furnished it to us.

This evaporation is done by heating the fruit very hot, when first brought to the heat, then continue in a strong current of very hot air until the drying is completed. This first heating serves to coat the fruit with an impervious coating to prevent the escape of the flavor and substance of it.

Fruits and vegetables dried in this way will readily command a price far in advance of what the ordinary sun or kiln-dried product will sell for. Some have expressed themselves as surprised at the difference in price between evaporated and ordinary dried fruit, thinking the good old way of our fathers was good enough for them; but it is safe to conclude that consumers have considerable discrimination, and are willing to pay for quality; hence, the difference in price.

Now, for comparison, we will assume there would be little difference in the weight of product that a bushel of apples would make, whether sun-dried or evaporated, notwithstanding bees and flies abstract considerable from the one. We will put them at five pounds per bushel as an average product. Then, we have for five pounds at to-day's quotations, 2½ cents per pound, which will give us 12½ cents per bushel for the apples, to say nothing of paring, coring, etc., or like the boy that gave away his hay and charged five dollars per ton for hauling; at that, 12½ cents would not be very strong pay for paring, coring and drying.

Now, evaporated apples are quoted at 9 to 10 cents per pound, wholesale, and if we count time, they can be evaporated more cheaply than dried in the sun, for we will complete them in a less number of hours by evaporation, than of days by the other process, even in good weather.

Again, in the old way, it was necessary that the operation should be completed during good weather in the fall; thus only fall and early winter apples were eligible for drying, while by the new process, the inclement weather in winter is the most favorable time for the operation, for at that season cultivators have more leisure to attend to it. Winter apples also, as a rule, make a better article of dried fruit than those ripening during the hot weather; besides, fruit dried in hot weather is in great danger of becoming infested with the eggs of the moth, so destructive to dried fruit.

Peaches being very perishable, have to be dried in season; but it will pay even at that, to evaporate. A good article of fruit will produce six pounds of pared dry peaches per bushel, and they are to-day worth thirty cents per pound, thus giving $1.80 per bushel, and allowing fifteen cents per bushel for evaporating, leaves $1.65 as the value of a bushel, which is better than shippers usually realize, except for extra fine lots or in uncommon seasons.

Raspberries also have to be handled at a busy season; but no one thinks of going into its culture without making calculation for marketing the fruit, and he can evaporate about as cheaply as he can deliver to shippers; indeed, counting cost of packages and the liability of losing them, he can dry quite as cheaply as he can deliver to an express company; and they are now worth twenty-five to thirty cents per pound, and three quarts will make a pound when dry; thus we realize about nine cents per quart net, which is better than most of us do in the common way.

Still there is another phase to this subject: by thus drawing from the market so much as will allow the remaining part to bring a good paying price, they will probably sell for as much money as the entire crop would have done, and then the dried fruit fills an important place and will considerably enhance the profits.

Sweet-corn also being easily raised, cheaply dried, and readily sold, is very profitable; so also are tomatoes, pumpkins, green beans, sweet-potatoes, and indeed, nearly all perishable vegetables can be readily preserved in this way, thus saving expense and loss by canning, which at best is unsatisfactory.

We can remember that a few years ago, the rage was for fruit-houses, and late-keeping varieties of apples, when quality must be left out of the account, or made secondary to long-keeping.

But for all culinary purposes, the evaporated product is equal to the fresh fruit in its best estate, and far better than an apple kept beyond its season.

Thus we can plant our orchards with the best varieties, selecting those of suitable size for paring, such as Baldwin, Rome Beauty, Peck's Pleasant, or anything of proper size, good quality, and that will keep into winter. The value of all our fruits, berries, etc., will ere long be adjusted on a scale of their value as to their evaporated product; while in the past it has been on the amount that could be consumed in a fresh state, the balance being doomed to loss.

Our orchards also bear a very abundant crop one year, and the next or off-year gives us ample time to work off this surplus, if we have it properly husbanded.

I am warned that time bids me close, lest I become tiresome; still there is one more point to which I wish to direct attention; that is, sending to market or exporting.

The countless thousands of bushels of green apples that have been shipped to European ports the past season, has produced a rich harvest for the transportation companies, when, if the same had been converted into evaporated product, and saved freighting so vast an amount of water to distant ports, it would have added a very large net income to our farm product account.

In conclusion, I think the new process of evaporation is destined in the near future to be a great auxiliary to the horticulture of our country.

Mr. Riegel confirms the statements of Mr. Edgerton, having purchased a fruit-evaporator to utilize his large crop of peaches, which he has dried very satisfactorily. Has also used it for drying blackberries. The quality of dried fruit depends very much upon the excellence of the fruit before drying. It is only a good fruit that will produce a first-rate dried article. Much, also, depends upon neat and attractive packing. He had sent to Cincinnati some nice dried apples, put up in small, fancy boxes, and marked "double extra," which sold readily at 15 cents per pound.

Mr. Julian inquired the cost of boxes, such as described.

Mr. Riegel answered that 2½ cents per pound would cover the extra cost of boxes and handling. His boxes were made of light pine, handsomely labeled.

Hugh Keenan had a dry-house, and found it of great value in utilizing the large surplus of fall apples that occurs in the bearing year. He found the fine fall apples made a better quality of dried-fruit than the late keepers. He succeeds in making a finer quality of fruit by drying than by canning.

Mr. Edgerton thinks pasteboard boxes will probably be the best and most economical for small and fancy packages.

The election of officers of the society for the ensuing year was then held, and as there was no dissent to the nominations of the committee, as before reported, Col. G. S. Innis was appointed to cast the ballot of the society for the entire ticket, making their election unanimous. The result was as follows:

President, Dr. John A. Warder; Vice-President, Nicholas Ohmer; Secretary, George W. Campbell; Treasurer, Leo. Weltz.

Ad Interim Committee—G. S. Innis, J. J. Harrison, G. H. Miller, G. W. Trowbridge, J. K. Niesz.

Mr. J. S. Woodward, of Lockport, New York, was presented to the society, who placed upon the tables two plates of the Niagara grape. One specimen, which was picked September 16, and since exposed to the air, was much shriveled and discolored. The other, picked November 6, and left in packing box, was quite fresh, and well-flavored, showing good keeping qualities.

The following paper was then read upon

THE PRODUCTION OF NEW AND IMPROVED VARIETIES OF FRUITS, FLOWERS, AND VEGETABLES.

BY GEO. W. CAMPBELL, OF DELAWARE.

This is a subject which has interested me for many years, and, although my experiments have not resulted in all that I hoped to attain, sufficient has been accomplished to warrant the assertion that important and useful improvements may be reached through the agency of seedlings and crossing, or hybridization.

The natural method of the reproduction of the fruits of the earth remains the same ever since the third great day of Creation, when it was decreed that the earth should "*bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after its kind, whose seed is in itself;*" and this divinely instituted process still goes on—the seed still brings forth after its kind, but with an inherent law of variation, and this variation, after the lapse of centuries, is still tending towards improvement.

Through the helping hand of man, this improvement has been most rapidly advanced by two distinct methods—one by cultivation and selection; the other by hybridizing and crossing. A natural or wild fruit is susceptible of a certain degree of improvement by cultivation and pruning. The tree or plant can be thus restrained from overbearing, and its energies directed to the production of fewer and more perfectly developed specimens. Seeds from these improved fruits, especially if taken from young trees, themselves tending toward more perfect development, will be likely to produce something better than the original type. Care and skillful cultivation can again improve these; and so the process can go on through successive generations until the limit of improvement is reached. It was Van Mons' theory that seedlings from young trees were more likely to produce improved varieties; and that seedlings from old trees, in their decline, would go back towards the original or wild types from which they sprang.

That a similar process has been, and will always continue to go on in Nature, unaided by man's assistance or intervention, there is no doubt, for chance seedlings of unusual excellence are occasionally found. But the work of improvement in this case is necessarily slow. But the greatest works of the universe move slowly, as might be expected, when directed by the hand of Him, with whom "a thousand years are as one day."

Something of rugged hardiness has doubtless been lost through the refining influences of cultivation upon many of our finest fruits; and there are those who advocate again planting seeds from wild varieties to produce hardier races. But this would, in my judgment, be going back to the point where improvement began, centuries ago, and it would take another series of centuries to reach the results we now have. The road to further improvement is, from our present position. Keep what we have, and advance as much further as possible.

Wonderful advancement has been made in fruit-culture, both in improved quality of the productions, and in the increased number and variety of new and valuable kinds within the memory of our youngest members.

Many of us can remember when the common, wild, field strawberry was all we had. Now we have them in almost countless varieties, of every grade and quality, improved in beauty, productiveness and flavor; an article of great commercial importance, a household necessity; and if the *pictures* can be relied upon, rivaling the peach, the apple, and the tomato in size.

It is but a few years since the red Antwerp and the wild black-caps of the forest were our only raspberries. Then came the Doolittle's improved, and many others of similar character, followed by the Mammoth Cluster, and culminating in the still more mammoth, Gregg. In improved red raspberries the number is still greater and the improvement no less marked. New apples, pears, and peaches, of greater or less excellence, are constantly appearing, of variety and character suited to all tastes, and adapted to all climates and seasons.

I can remember when the Catawba and Isabella were our only cultivated grapes. Now they are catalogued by hundreds, and, at a recent horticultural exhibition, 249 distinct varieties of American production were shown at one time. In beauty, variety and quality they have also wonderfully improved, and are still improving.

The improvement in new and fine vegetables and grains is, perhaps, not less important and remarkable than in the way of fruits.

And, in the floral department, rare and beautiful roses, geraniums, ornamental and charming foliaged plants have multiplied in wonderful profusion; and, in every branch of the lovely kingdom of Flora, the advance has been little less than marvelous to those who can look back for forty, or even twenty years.

Improvement, by the natural processes above mentioned, must necessarily precede that of hybridizing or crossing, and the latter method is principally useful in producing new varieties by uniting the good qualities of those already advanced in improvement.

The possibilities, and the important results from the hybridizing or crossing of plants were foreshadowed by the mind of Lord Bacon, 250 years ago, when he wrote the following significant words: "The compounding or mixture of plants is not found out, which, if it were, is more at command than that of living creatures; wherefore, it were one of the most notable discoveries to find it out, for so you may have great varieties of fruits and flowers yet unknown."

We will take for an example, the improvement of grapes, by the means of hybridizing, or crossing:

The most of our native American grapes, though they may be hardy, healthy, and productive, when compared with the exotic varieties, are coarse and inferior in quality. The foreign grapes lack the necessary hardiness both of vine and foliage to endure our variable and rigorous climate. Now, if we can by crossing the foreign upon the native, produce a class of seedlings retaining the hardiness of the native grape, having at the same time the exquisite quality of the exotic, we shall achieve a most valuable work, and one that could only be produced by natural results, in very many successive generations. That entire success has been attained in any single experiment of this kind, can not be claimed. But that there has been marked and wonderful improvement, is certain. Varieties of grapes, having nearly the excellence of the foreign kinds, have been grown from the seed of our native grapes thus crossed; and, although the vines, so far, have retained some of the tenderness of the foreign varieties, they are greatly improved in hardiness and adaptation to our country, and many of these hybrids are growing successfully in favorable localities. But the improvement does not end here. These hybrids have been again crossed upon natives, producing a race with still less of the foreign element, and while still retaining the fine quality of the exotics, have nearly the health and hardiness of the native sorts. I have great confidence, from a careful examination of many new grapes produced within the past few years, that the time is not distant when we shall have a class of grapes, both for wine-making and table use, which can be successfully grown in all reasonably favorable locations in vineyard culture, and that will not be inferior to the celebrated European kinds.

There may be those present who would like to know just how this operation of hybridizing is performed. A little knowledge of the structure of the flower is necessary. The stigma or pistil is the central point of the flower which surmounts the germ of the future fruit or seed vessel, and is the portion which is to receive the fertilizing pollen from whatever variety it is to be crossed with. Surrounding this stigma are the stamens or slender filaments crowned with anthers, which contain the fertilizing dust or pollen, which burst at maturity and shed their fecundating contents upon the stigma. When a cross is desired, the stamens must be removed before the pollen is matured, and the stigma artificially supplied with pollen from whatever other variety the cross is made. Seeds from the fruits so operated upon may be expected to partake of the character of both. After the operation of artificial fertilizing is performed, the flower must be inclosed within an oiled-silk or other impervious bag, to prevent the interference of bees or other insects.

With vegetables, especially with corn, the operation is somewhat different. The tassel corresponds to the stamens, while the "silk" from the end of the embryo ear is the pistillate portion. Each filament of the silk is connected with a grain of corn, and the pollen dust from the tassel falling upon the silk fertilizes or impregnates the corresponding grains and brings them to perfection. Now, if you plant a row of corn, and as the tassels appear at the tops of the stalks, pull them out or cut them off before the pollen has matured, you will have the silk and the cobs, but not a grain of corn in the whole lot. But if you wish to produce a cross or new variety, and you supply the silk of this barren row with the pollen from the tassels of another variety, you can produce almost any cross or variation you choose. I have produced as many as six varieties of corn upon a single cob. Late corn may be made early by crossing the pollen of the late variety upon the stalks of an early kind, and so it may be reversed.

Double flowering plants often produce stamens and pollen, but rarely form any seeds. The double petunia, I think, never does. But it does supply pollen, and if the single flowers are deprived of their stamens, and then fertilized from double ones, the seeds will many of them produce double flowers.

Many new and interesting classes of ever blooming roses are constantly being produced, principally by foreign growers, by crossing and re-crossing the various families of this lovely flower.

At the present time, I think nearly all the most marked and important improvements in fruits and flowers are made through the agency of the crossing or hybridizing of different varieties.

The most certain and immediate effects can be produced by the means I have already described; but different, and perhaps more natural methods, have often been pursued with great success, and most valuable results. The late Dr. Jared P. Kirtland, of blessed memory, whose far-reaching mind seemed to penetrate and comprehend the hidden mysteries which surround the life and growth of the plants and trees he loved, made an experiment in this direction, the results of which will continue to bless mankind, perhaps, as long as his name endures. He planted an old yellow Spanish, or Bigarreau cherry tree, and at the same time in a circle around it, several other of the best known varieties, so near that when they grew to bearing size, their branches would be interwoven around and among those of the central tree. He expected, that by the agency of the wind, and that of bees and other insects flying from flower to flower, and from tree to tree, the pollen would be carried from one to the other, and cross-fertilization be performed by these natural agents in the most perfect manner. He saved, and planted the seeds from the fruit of the central tree, and the result verified his expectations, by producing a great variety of seedling cherries of distinct and diversified character, many of them of great value, having a world-wide reputation, and a permanent place in all the important catalogues of this country and of Europe.

The many improvements in variegated foliaged and flowering plants are also largely, if not entirely due to persistent and intelligent skill in crossing plants of the same species, but of different characteristics. The charming tri-colored or gold and silver-leaved geraniums, as well as the great and ever increasing number, of beautiful double and single flowering kinds of nearly every shade, color and form are also mainly produced in the same way. And that novelties in this line are not merely curious and interesting, but often have a money value as well, a quite recent instance may be mentioned. The geranium "New Life," produced by Henry Cannell, an English florist, is doubtless known to most of you, as it is now quite common in this country. A brilliant, scarlet flower, striped and often irregularly flaked and dotted with white, was regarded as a novelty so unique and desirable, that he was enabled to obtain one thousand subscriptions for plants at one pound sterling—nearly five dollars each—before sending it out of his hands.

It is well, especially for members of horticultural societies, and those who love the pursuits connected with horticulture, to plant seeds and to employ every known agency for the improvement of their favorite fruits and flowers. It is well, also, to have a watchful eye for new and varied forms, and especially for any characteristics in seedling fruits which promise to be real improvements upon older kinds. And having found a good thing, not to be too reticent about letting it be known, or giving it to the world. Many valuable things are doubtless lying in obscurity for the want of active enterprise to bring them to the light. But for the intelligent observation and business-like energy of friend Ohmer, the Gregg raspberry might have remained unhonored and unknown beyond a small and perhaps inappreciative locality.

Sometimes, also, a fruit may be neglected and regarded as valueless, because unsuited to the locality where it is grown, while it may have great value under other and more favorable conditions. An instance in my own experience will illustrate: My experiments in crossing and hybridizing have been principally with the grape, and among a lot of hybrid crosses produced some years since, I had a strong-growing, quite healthy vine from Concord seed, fertilized with a foreign variety. It gave very large and handsome clusters of white grapes, but they were very late in ripening, and in my garden never attained a character or flavor that I considered as worthy of perpetuating, and it was, with hundreds of others, discarded. I happened afterward to mention this grape in a letter to a grape-grower in Missouri, who suggested that I should send it to him for trial. Though it was apparently worthless with me, it proved to be adapted to southern culture, and received the grandiloquent title of Triumph. I was pleased to see the following in a recent report upon grapes and fruit-growing from Texas:

"The Triumph grape seems to be fully at home here, being vigorous, and immensely productive of the largest and finest bunches, some of which weighed one and a half pounds each. In quality it is equal to the best of foreign grapes."

I believe there is a wide field, not only for interesting, but for profitable experiments in this pursuit, which I would especially recommend to the younger members of our noble society. One in which there is a reasonable prospect for benefit, not only to the individual, but to society, and to the world at large.

Mr. Woodward thinks there is a great field for useful work in the production of new and improved varieties. In improving the grape, however, he believes the improvement must come from the native instead of foreign kinds. Though the foreign grapes are exquisite to an educated taste, children, whose tastes are natural, or uneducated, prefer the native to the foreign grapes. Mentioned an experiment, where children, who had access to both, left the foreign varieties untouched, and chose the natives.

Mr. Campbell thought very poor foreign grapes and very good natives must have been used in this experiment. Otherwise it would afford a pretty good argument in favor of total depravity, or original sin.

Mr. Snider asked for some information about grafting the grape.

Mr. Campbell gave some of his experience in this line. He had experimented with all the different methods, and at different seasons, with rather variable success. Had succeeded best by grafting early in spring, about the time of the first motion of the sap, and before the great flow begins; grafts below ground, uses cions of one or two eyes; splits the stock with a sharp, thin knife, sometimes taking out a small wedge-shaped piece; cuts the graft a beveled wedge-shape, thickest on the outside, and inserts after the old-fashioned manner of cleft-grafting. Usually tie tightly with a stout, flax cord, and cover the cut parts with soft clay. Then cover the whole with fine earth, leaving the upper bud of the graft just below the surface. If the operation is carefully performed, a large proportion will grow. It is important that the graft should be quite dormant, and the stock a little in advance of the graft.

DO BEES DESTROY GRAPES?

Mr. Finney asked if bees destroy grapes?

Mr. Harrison says they do.

Mr. Finney thought they did not attack sound or unbroken grapes, for he had placed whole clusters upon the lighting-tables of his hives, which remained untouched so long as the skins were not broken or punctured by some other agency. Any berries that were punctured, were cleaned out directly, but the sound berries were left entirely unharmed.

Mr. Keenan mentioned an instance where bees had cut through some cotton cloth, and if they could do this, he argued that they could also cut the skins of grapes.

Mr. Woodward had examined this matter. and was satisfied that the bees did not attack or destroy sound grapes.

Mr. Riegel keeps bees, and grows grapes, but he has never seen, nor known any one who has seen, a bee puncture a grape.

Mr. Keenan believes the bee would rather have something else puncture the grape for him, but he still thinks the bees will do it.

The discussion was continued at some length by Col. Innis and others, the prevailing opinion being that the bee did not puncture or attack sound grapes, but where the skin was cracked or broken by other agencies, the bee utilized the grape-juice which would otherwise be lost.

Mr. Campbell had experimented to ascertain the truth in the case, and was satisfied that his bees did not attack grapes unless the skin was first broken by something else. Birds were generally the real destroyers. Cat-birds, robins and orioles, the latter usually the worst. They puncture the grapes by wholesale early in the morning, and in the evening, and the bees follow, taking the juice out of the punctured grapes left by the birds. Covering the vines with coarse net, leaving free access to the bees, but shutting out the birds, stopped the performance at once. Every berry that had been previously punctured by the birds would be thoroughly cleaned out, but all the sound berries would remain intact thereafter for weeks or months, or until taken from the vine.

Mr. Snider reported the condition of grape-growing about Lancaster, in Fairfield county, as very favorable. He grows Ives' Seedling largely, also Concord. Is also trying Elvira, Cynthiana, and some others of the newer kinds. He reports the most of the grapes in his locality as very rich in sugar. He had been experimenting in his vineyard by sowing salt in the proportion of one barrel to the acre, and had no mildew, nor rot where the salt was applied. His Concords had rotted some, but it was where the salt had not been applied.

Mr. Moore, of Zanesville, made the following report upon

FRUITS IN MUSKINGUM COUNTY, FOR 1880.

Mr. President, and Gentlemen of the Ohio Horticultural Society:

Commencing with the first fruit of the season, the

STRAWBERRIES

Were a light crop, being injured in several ways; first, where mulched, the mild, open winter did much to damage the plants; late frosts, when in bloom, killed many and injured others to a greater or less degree; then, at the season of ripening, when, to make good berries it requires gentle showers, we had a drouth, which almost made the strawberry crop a failure, or, at least, caused a great sacrifice to the growers. The Barnesville growers seemed to be somewhat favored, but sustained considerable loss.

THE CHERRY CROP

Was the finest ever gathered in this section of Ohio; the trees laden with their red, black and yellow, large, plump, luscious fruit was a great luxury—the birds and boys all enjoying them hugely; some of the 40-years-old boys also did a good share of disposing of them.

RASPBERRIES

Did quite well, and among the newer varieties the *Gregg*, as a market variety, promises thus far to supersede all black-cap varieties.

CURRANTS

Were good, and sold more readily than in former years.

BLACKBERRIES.

Wild ones were in abundance; but few are cultivated.

GOOSEBERRIES

Did well, but no demand for them.

PLUMS

Were abundant and brought fair prices.

PEARS.

Some varieties bore quite heavy; large, smooth and perfect.

PEACHES

Were fine, ripening ten days or two weeks earlier than usual. Some new seedlings were shown, and, if as represented, bid fair to supersede some of the older kinds. One, a new seedling, raised by Mr. Osborn, near Duncan's Falls, resembles the *Smock*, and was taken for such, ripening at the same time, but of decidedly different quality—seed quite small, with but little redness—sweet and good. Another seedling, grown by Mrs. Parsons, in Zanesville, ripening with the *Smock*, or later; flesh white, red cheek, large, fine, and of good quality. Many other new seedlings were shown, but none appeared to be better than the known varieties that ripened at the same time, except the two just mentioned. Judge E. E. Evans showed a fine lot of seedlings, and many of them so nearly resembling the known kinds that it was difficult to tell one from the other, and the supposition was that they had been reproduced from the budded variety.

QUINCES

Were not very abundant, but sold readily from $1.50 to $2.50 per bushel, according to size—$2.00 being the prevailing price.

GRAPES

Did better than for several years past, although considerable rot prevailed in some vineyards. The demand was not good, and the query with some of us was, what will we do with them ?—2 to 3 cents a pound was all that could be had for Concords, and that is the grape mostly grown here. Some of us who would not sell at the above figures, or less, pressed the juice, and are trying to get it into wine. If we fail to get it in wine, the next resort will be vinegar, and if that fails, the finis comes.

APPLES

Are just about as good and perfect as one could wish. A large crop was gathered, but complaints are made that they are not keeping well, owing, no doubt, to their having ripened ahead of other seasons, as was the case with almost all fruits. Many new seedlings have been shown, also many varieties for identity—a large per cent. of which were identified.

I almost omitted the new seedling grapes, some of which promise well, and are still left for further trial.

NUTS.

Black-walnuts and butternuts plenty. Hickory shell-bark scarce, the trees having nearly all been destroyed. Chestnuts almost a total failure. Wild flowers quite a good bloom. Vegetables did pretty well, except potatoes, which are rather a light crop. The buds go into the winter well ripened.

Dr. Warder presented the following paper upon two new varieties of

TREES.

CATALPA SPECIOSA (WARDER.)

This tree was seen thriving and apparently in good health, of different ages and sizes, and bearing sound, perfect seeds, in different parts of the city of Ann Arbor, Washtenaw county, Michigan, on gravel drift. The origin of these trees was not ascertained; but many years ago a single pod, brought from Kentucky, was left in this county; the seeds planted grew, and may have been the source from whence the fine trees of that beautiful and hardy species on the college campus and elsewhere have emanated.

A NEW OAK,

To Ohio, was discovered last June on the Canton Fair Grounds, Stark county. A further examination of leaves and acorns, which has been rendered possible by the kindness of Secretary W. W. Reed, of that county society, confirms the suspicion of last June, that this is the *Quercus heterophylla* (Michaux) the Bartram oak, long thought to be a unique tree, but which has since been found native in other places, though rare, and not before reported in Ohio, so far as we know.

On motion, adjourned to 7 o'clock, when the society was to assemble, after a short session, and go in a body to the banquet offered by the Columbus Horticultural Society, at the rooms of the State Board of Agriculture.

EVENING SESSION—THURSDAY, *December* 9, 1881.

The society met at 7 o'clock, pursuant to adjournment, and Dr. Warder announced the presence of Prof. C. V. Riley, the distinguished entomologist.

Dr. Warder made a brief report of his visit to the annual meeting of the Michigan State Horticultural Society, which was held at Ann Arbor, on the 6th, 7th and 8th of the present month. He spoke of the meeting as one of much interest; many valuable and interesting papers were read, and much instructive discussion followed. A paper by Prof. A. J. Cook, upon "New Insect-enemies, and new Methods of Insect Warfare," was specially commended. The Grape-vine Flea-Beetle (*Haltica chalybea*), Illeger; the Snowy Tree-Cricket, (*Œcanthus niveus*), Harr.; the Codling Moth (*Carpocapsa pomonella*), Linn.; and the Cabbage-Worm (*Anthomia brassicæ*), Louche; were the principal subjects of the paper, together with experiments for their destruction by the use of Paris Green, London Purple, and more particularly the Pyrethrums, *roseum*, and *cinerariæfolium*, which form the active element in "Buhach" or Persian Insect Powder. The latter is commended as very effective in the destruction of insect-life, and far less dangerous to man than the mineral poisons, and there is reason to believe it will be found a powerful agent in destroying many of the noxious insect pests which affect so seriously the interests of the horticulturist.

Mr. Riley made some remarks upon the *Curculionidæ*, or Snout-Beetles, taking as a basis an interesting paper, published in the Thirteenth Annual Report of our Society, upon "The Curculio as an enemy of the Apple," by Mr. George W. Dean, of Kent, Portage county. Mr. Riley said he did not exactly understand the paper, but thought it probable Mr. Dean had not learned to distinguish between the work of the plum curculio and the other curculios, and that he might have been examining the work of the apple-curculio, which somewhat resembled that of the plum-curculio, but has some distinct peculiarities. In the absence of stone-fruit, the plum-curculio would sometimes deposit its eggs in the apple, but he had never observed it to the extent mentioned by Mr. Dean. The mark, or puncture made by the plum-curculio, was usually, but not always crescent-shaped, while the punctures by the apple-curculio were round; a part were apparently made for the purpose of feeding upon the substance of the fruits, as only a portion of them are found to contain eggs. The larvae of the plum-curculio leaves the fruit and undergoes its transformation to the beetle state in the earth, while the apple-curculio is transformed in the fruit, and leaves the apple a perfect beetle. The apple-curculio is the smaller of the two, and differently shaped, but might be mistaken for the other by persons who did not observe very closely. The scientific name of the plum-curculio is *Conotrachelus nenuphar* (Herbst), that of the apple-curculio *Anthonomus qudrigibbus* (Say). The natural home of the latter is said to be in the wild crab-apple of the American forests, but it has, in many places, invaded orchards of cultivated fruit, and in company with the larvæ of the codling moth, or apple-worm, often does great damage in blemishing and destroying the fruit.

Mr. Riley also mentioned some distinguishing features of the larvæ of the curculios and of the apple-worm. The larvæ of the curculio have no legs or feet; that of the plum-curculio is straight; that of the apple-curculio always curved or humped; the apple-worm has legs. Mr. Riley accompanied his remarks by the exhibition of some enlarged drawings, and described at some length the various snout-beetles which attack and injure our cultivated fruits, including the quince curculio, *Conotrachelus cratægi* (Walsh), and the Plum-gouger, *Anthonomus prunicida* (Walsh), together with some of their near allies, the grain weevils.

Mr. Riley spoke also of the use of some comparatively new remedies against insect-enemies. Kerosene oil was a very efficient agent for the destruction of insect life, but there had been difficulty in applying it—as when used in its natural state and full strength it was as destructive to vegetable, as to insect life. By first mixing it with milk, the Professor stated, it could then be diluted with water, and used both safely and effectively. The Pyrethrums, *cinerariæfolium* and *roseum* were also highly commended by him, and had been found very effective in destroying the cabbage-worm. It can be used dry in powder, in alcoholic solution, or dissolved or mixed with water, in which it is partially soluble. A mixture of one pound to 100 or 120 gallons of water was found strong enough to kill cabbage-worms. The liquid solution could be applied with a syringe or sprinkler, or by a simple implement called the Riley atomizer. A second or third application is usually necessary, as many worms are inside the cabbages, and are not easily reached. He had not tried the milk and kerosene mixture for the cabbage-worm. The Pyrethrum powder is yet scarce, and difficult to procure of fresh and good quality. Price, in New York, is now from 75 cents to $1 per pound.

Mr. Crawford inquired about an insect that he finds on all his strawberry plants the second year after setting, puncturing the leaves, and the larvae of which he thinks also feeds upon the roots.

Mr. Riley thinks it the work of a small, yellow beetle, *colaspis flavida*, recently described by Prof. Cook, which is also found upon the grapevine. The larvæ of this beetle attacks and destroys the small, fibrous roots of the strawberry, and the beetle feeds upon the leaves. He advised annual ploughing of the ground as a remedy

Mr. Riley also spoke of the strawberry crown-borer, *Analcis fragariæ*, which in many places is very destructive, by reason of the larvæ eating into the center or crown of the plant. It is described as a small, chestnut-colored beetle, about $\frac{1}{6}$th of an inch in length; which in this state is supposed to feed upon the berry of the strawberry.

The Secretary adds, in reference to the discussion upon Mr. Dean's paper, that after-investigation fully sustained the correctness both of the statements and of the conclusions of Mr. Dean; and that the plum curculio was the principal agent in producing the blemishes and imperfections described. That the plum curculio does puncture the apple, and deposit its eggs, and that they hatch and penetrate the substance of the apple, there is abundant evidence. But it is also evident that the apple is not suited to the perfect development of the larvæ. and that all, or nearly all, perish within the apple without coming to maturity or entering the chrysalis state. Upon this subject, I find the following on page 33, of Mr. Riley's Third Annual Report, for the year 1870, as State Entomologist of Missouri, in an article upon the Apple Curculio:

> "Our apples suffer much more, in many localities, from the gougings of the perfect beetle, and the burrowings of the larvæ of the Plum Curculio, than they do from the work of this Apple Curculio; and this was so much the case in my own locality the past summer, that I found a dozen larvæ of the former in apples, where I found one of the latter."

On motion, the society adjourned to meet to-morrow morning at 9 o'clock, Col. Innis having just announced that the preparations for the banquet at the Agricultural rooms in the State House were completed, and that the committee having the matter in charge, were now ready to welcome the members of the Ohio State Horticultural Society, and other invited guests.

THE BANQUET.

It was about 8 o'clock in the evening when the members of the society proceeded in a body to the State House, where they were joined by many citizens of Columbus, and others invited to meet them. The invitation list included the Governor and wife, with other State officials, the officers of the United States Courts and others, nearly all of whom responded, making a gathering of more than one hundred guests.

The Ohio State Journal of the next morning thus speaks of this pleasant reception:

"A considerable time was spent in a social way, both of the Agricultural rooms having been appropriated for the purpose. A committee of ladies, consisting of Mrs. N. E. Lovejoy, Mrs. Wm. Merion, Mrs. Lofland and Mrs. Nelson, representing the Columbus Horticultural Society, had the arrangements in charge, and to say that they succeeded admirably is putting the case mildly. The east room proper was occupied for banquet purposes, but it was found that the other apartment also had to be appropriated in order to accommodate all present. A large table occupied the center of the east room, which was trimmed to perfection and was loaded down with the subject-matter for after discussion. Pyramids of jelly in glass, cakes and fruit, with liberal floral trimmings, made a fine center for the social groups, who were arranged about at small tables to suit convenience. All were served in a ready manner, and the bill of fare included substantials and finishing dishes, creditable all around.

"The banquet was concluded by half past ten o'clock, and was appreciated by all as a generous hospitality on the part of the Columbus Society and the committee having the affair in charge."

The Columbus Dispatch had also the following:

"A banquet and reception was given last evening by the ladies of the Columbus Horticultural Society to the members of the State Association now in session here. The entertainment was in charge of a committee of ladies of the local society, who managed it with admirable tact and success.

"The tables were set in the east room of the Agricultural Department of the State House. A long table in the center of the room was laden with the substantial requirements as well as the lighter elements of a feast, and trimmed in very handsome style. There were pyramids of jelly in glass, cake, and fruits from the farms of the horticulturists themselves. The *menu* was abundant and of great variety. The east room would not accommodate all the guests, and tables were also spread in the west room, and after an hour of pleasant social intercourse, all sat down to the banquet.

"Among the guests, in addition to the members of the State and local societies, were Governor and Mrs. Foster, Secretary Barnes, State Treasurer Turney, Secretaries Chamberlain and Fleming of the State Board of Agriculture, General Wilcox, J. J. Janney, Henry C. Noble, and many other prominent citizens with their wives and daughters. Judge Swing, United States Marshal Ullery and his son, and Deputy John C. Ullery, Deputy Clerks Blakemore and Mattox, of the United States Courts, were also present. There were no formal speeches, the evening being passed in social converse and greetings."

Morning Session.—Friday Morning, *December* 10, 1881.

The meeting assembled pursuant to adjournment, at 9 o'clock, when the committee appointed to examine the fruit and vegetables on exhibition made the following report :

REPORT OF THE COMMITTEE UPON FRUITS AND VEGETABLES.

The display was not very large, but yet sufficiently so to require considerable labor on the part of your committee.

The handsome displays of G. F. Newton, of Millersburg, Ohio, and of J. K. Neisz, of Canton, Ohio, were particularly to be commended by reason of the perfect and handsome fruit, together with the correct naming of varieties and attaching the same thereto.

Mr. Newton has 24 plates, as follows: Ohio Nonpareil, large and well kept; Culp, large and good quality; Nickajack, Grimes' Golden, not large, but fine; Broadwell Sweet, Fall Pippin, Hubbardson Nonsuch, Baldwin, large and fine; American Golden Pippin, Rome Beauty, King of Tompkins Co., Belleflower Peck's Pleasant, Flory, Red Canada, Wagener, Willow Twig, White Pippin, Smith's Cider, Rawle's Janet, Noir (most likely Jonathan), and 3 for name; one not known, the others recognized as Moore's Sweet and Cranberry Pippin.

J. K. Neisz has 36 plates, as follows: Baldwin, Belmont, Belleflower, Ben. Davis, Kaign's Spitzenberg, Cracking, Culp, Ewalt, Esopus Spitzenberg, Fallawater, Granniwinkle, Grimes' Golden, R. I. Greening, King of Tompkins County, Ladies' Sweet, Maiden's Blush, Northern Spy, large and fine; Ohio Nonpareil, handsome; Ortley, Peck's Pleasant, Winter Pound, Royal, Rawle's Janet, Roman Stem, Rome Beauty, Roxbury Russet, Romanite, Red Canada, unusually large and handsome; Smith's Cider, Weaver Sweet, Western Spy, Western Beauty, Lady, and 4 of seedlings or for name, all of which we are unable to name.

W. C. Pinkham, Loveland, Ohio, sends 11 plates apples, and very good for Southern Ohio, as follows: Green Newtown Pippin, Fameuse, Vandevere Pippin, American Golden Russet, Roxbury Russet, Talman's Sweet, Wine Sap (most probably Jonathan), Yellow Belleflower, Pryor's Red and Ortley, one plate, a seedling, too poor in quality to be recommended.

W. W. Reed, Esq., of Canton, Ohio, has also a very nice collection of apples, consisting of 21 plates, among which we report the following: Weaver Sweet, very good; Grimes' Golden and Belmont, alway's good; Plum, Dominie, Monmouth Pippin, Jonathan, Yellow Belleflower, Baldwin, large and fine; Peck's Pleasant, very large; Red Canada, R. I. Greening, King of Tompkins County, Roxbury Russett, Ewalt, Rambo, Limber Twig, Vandevere, Fallawater, Black Gillieflower. One plate of pears, Lawrence, a well-known standard, and good variety of late fall and early winter fruit.

Josiah Correll, Stark county, Ohio, exhibits 6 plates apples, as follows: Dominie, Belmont, R. I. Greening, Newtown Pippin, Westfield Seek-no-Further, and one plate, said to be a seedling, season late fall, rather past its prime, but brittle in texture, and quite good in quality. May be worthy of a name, after further trial.

A. Pontius, Stark county, Ohio, exhibits 8 plates apples as follows: King of Tompkins County, Northern Spy, Ewalt, Red Canada, Fallawater, Danver's Winter Sweet, Grimes' Golden, and Roxbury Russet.

H. C. Grant, Cuyahoga Falls, Ohio, sends 4 plates very large and beautiful apples, of the following varieties: Belleflower, Westfield Seek-no-Further, King of Tompkins County, and Baldwin.

Geo. W. Campbell, Delaware, Ohio, has one plate of apples for name (most probably an old seedling), medium in size, skin greenish in color, very tender in flesh, and a very pleasant, sub-acid flavor—good for family use. It is not known by any of the committee. [Has a local name as Fat Apple.]

Leo. Weltz, Wilmington, Ohio, exhibits a medium to large-sized pear; flesh somewhat watery in character, but sweet and good in flavor. He believes it to be "Bon Chretien D'Hiver," and a good winter variety for market. Also a large-sized yellow apple, said to be a seedling, of very good, but not best quality. Season late fall and early winter.

W. T. Kellar, of Miamiville, Clermont county, Ohio, exhibits the following apples: Rome Beauty, Smith's Cider, Northern Spy and White Pippin; the former three very brilliant and handsomely colored, to show it can be done by picking and lying on the ground for 2 or 3 days at the proper time. Also five plates of seedling apples, 2 of them sweet, and the others sub-acid. One, which is named Miami Beauty, matures late fall, and early winter, skin nearly covered with bright crimson color, form flat, texture tender and breaking, flavor mild, sub-acid and good. On the whole we think this apple may be worthy of a limited trial.

L. B. Pierce, Tallmadge, Summit county, Ohio, 1 plate apples, called by him Yellow Seek-no-Further. Medium in size, and quite good in quality.

Michael Bitzer, New Berlin, Ohio, 7 plates apples: Peck's Pleasant, Culp, Smith's Cider, Baldwin, and 3 for name, none of which are recognized.

W. Neisz, Canton, Ohio, 1 plate apples for name; not recognized.

B. T. Berlein, Louisville, Stark county, Ohio, 1 plate apples: "Hydes Keeper," large and showy, quality 2d rate; may have value by reason of long keeping qualities. Two plates apples for name, but could not be recognized.

J. Jenkins, Winona, Columbiana, county, Ohio, 2 new seedling apples: Leeds' Seedling; fall and early winter, scarcely good enough. Whinnery's Late Red, winter and spring, solid and firm, brilliant color and showy; not ripe enough to test quality—may have advantages by reason of good keeping qualities. Also quite a collection of seeds of deciduous trees and young nursery trees. Also a collection of branches of several varieties of evergreens.

Col. G. S. Innis, Columbus, Ohio, exhibits 4 varieties of potatoes; all are well-grown, as follows: Mammoth Pearl, Early Ohio, Victor and St. Patrick.

Matthew Crawford, Cuyahoga, Falls, Ohio, exhibits 7 varieties of potatoes, all very large and well-grown, and some of them of very recent origin, as follows: Matchless, Pride of America, Silver-Skin, Mammoth Pearl, American Magnum Bonum, St. Patrick, and a seedling, mammoth in size, originating in Portage county, not yet named.

By Niagara Grape Company, Lockport, New York, two plates of the new White Grape, named Niagara, recently produced by C. L. Hoag, Lockport, New

York. We are of the opinion this is a valuable acquisition, showing that it is a remarkable keeper, in connection with high quality.

W. W. Reed, Canton, Ohio, also exhibits a seedling apple named "Good," originating with Jacob Good, Perry township, Stark county, Ohio. This is a very handsome, medium-sized, flat apple, skin bright yellow, mottled and blushed with a beautiful bright red, rendering it an attractive, amateur variety. Season is fall; flesh yellowish white, very breaking and tender, mild and pleasant sub-acid. This fruit, if the tree is a good grower and bearer, should have a limited trial.

Col. G. S. Innis also makes a very creditable display of apples, consisting of the following varieties: Fallawater, Hubbardson Nonsuch, Belmont, Green Newtown Pippin, Smith's Cider, Yellow Belleflower, Westfield Seek-no-Further, Rome Beauty, Jonathan, and Danver's Winter-Sweet (most probably Green-Sweet.)

Geo. W. Trowbridge, *Chairman.*

The following report was also made by the committee on

TREES AND SEEDS.

J. Jenkins, of Winona, made an exhibit of the following varieties of deciduous trees:

Green and White Ash, Catalpa Speciosa, White Walnut, Sour Gum, Ash-leaved Maple, Sugar Maple, Black Walnut, Tulip-tree and American Chestnut. Also the following

EVERGREEN SEEDLINGS:

American Arbor vitae, Norway Spruce, Balsam Fir and Hemlock, all healthy and well grown.

SEEDS

Of the following varieties were also exhibited by the same party:

Sycamore, Pawpaw, Calycanthus, Magnolia acuminata, Tulip Tree, Green, Black and White Ash, Ash-leaf Maple, Kentucky Coffee-nut, Cornus florida.

Leo Weltz, *Ch'n,*
J. J. Harrison,
G. H. Miller,
Committee.

In a short discussion upon the new and beautiful Japanese Maples, it was generally feared they were rather tender, as well as of slow growth, and not yet to be recommended confidently for general planting. Mr. Weltz stated that Mr. S. S. Jackson uses the Western Box-Elder as a stock upon which to graft the Japanese Maples, with good success.

WINES.

The following report was made upon samples of wines exhibited:

John S. Snider, of Lancaster, Ohio, presents four bottles of wine, vintage of 1880, for sampling, as follows: Cynthiana, Clinton, Wilder and Elvira—the two former deep red. Wilder, beautiful bright red, and the latter nearly white in color. Being new, we can only say they promise well, especially that of Cynthiana having great body.

GEORGE W. TROWBRIDGE,
Chairman.

The following was also presented upon the question of the

INFLUENCE OF GRAFT ON STOCK.

A case of this character has come under my notice this year, which I deem of sufficient importance to make a written report thereon. The subject has been more or less discussed and theorized upon by Horticulturists, and the probabilities are no satisfactory or definite conclusions can be reached, except through the medium of facts and a series of well attested cases.

An old seedling apple tree of some thirty or more years, standing on the premises of A. J. Smith, in or near Galena, Delaware county, Ohio, produced a small green apple, one to one and one-half inches in diameter, considered worthless. Some four or five years since the tree was top-grafted with four or more varieties, among them King of Tompkins County, and two others which were red or striped also. The top was formed by separating into two main branches, inclining to the north and south. Owing to an intensely hot and dry summer which immediately followed the grafting, those set in the limbs on the south side failed, while those on the north all succeeded, but made very feeble growth that season. This year the wood springing from those grafts have fruited for the first time and produced apples which are recognized as true specimens of the varieties thus engrafted. But here comes the curiosity. All the limbs which were left on the north side of the tree, below the point where the engrafting took place, produce this year, for the first time, a distinctly red and striped apple, about double the size of the green one formerly produced on this limb. In quality I cannot say distinctly there is an improvement, although Mr. Smith thinks he can detect a difference in favor of the new or changed production. On the limbs on the south half of the tree which were left below where the engrafting took place (and which failed) no change occurred in the character of fruit, and the same small green apple appeared this season, as in days gone by. The query now is, what caused the changed condition? Was it owing to the severe pruning? If so, why did not the south half of the tree produce a red and striped fruit nearly, if not quite, identical with those on the north half? Such not being the case, we then must come to the conclusion the grafts of red and striped apples, inserted in those limbs, did, or may have had, an influence upon the wood and buds below them. I do not desire to assert, or even intimate that this is conclusive, but of sufficient definiteness to be stored up and used in comparison, when necessary, with cases of a similar character that may in the future be brought to notice.

GEORGE W. TROWBRIDGE.

Dr. Warder also made the following notes upon the same subjects upon examination of specimens of the two apples quite distinct in their appearance, as above described:

Apples, from A. J. Smith, Galena, Ohio: Supposed to be a *sport* from the smaller, green apple, the original seedling following the grafting of this tree with other kinds that have been supposed to have influenced the stock below their insertion. Can this be so? Or is it only an accidental bud sport?

Dr. Warder asked for some information about the disease known as the black-knot, which infests both plum and cherry trees, and which is extending in his locality. It is thought by some persons to be caused by insects.

Prof. Riley said that insects were almost always found in the excrescences known as black-knots; but they were not the cause. They only used the knots for breeding places. The cause is a fungus growth.

Mr. Keenan said he had suffered from black-knots on Damson plum trees; and also from smaller excrescences of a different appearance, which he had thought might be incipient black-knots, but which contained small, white larvæ; specimens of which were exhibited.

Dr. Warder asks if these larvæ have legs.

Mr. Keenan says they have; all at one end. These small knobs, or knots are on the increase, on his place.

Prof. Riley said he would use Mr. Keenan's remarks as a kind of text for some remarks of his own; for we can make better progress by using the information which has preceded us. Dr. Fitch had formerly thought the curculio bred in knots and twigs as well as in plums; but the larvæ which he found, proved afterward to be that of the Buffalo tree-hopper. The small knots exhibited by Mr. Keenan are both new and interesting; but have no connection with the malady recognized as the black-knot. These little swellings with larvæ inside are interesting, because they may perhaps throw light upon another subject. The early leaves of cherry trees are often infested by small mites forming horn-shaped galls upon the upper surface of the leaves. He thinks it probable that these small mites hibernate in these excrescences in the tender bark; but this cannot be regarded as fully ascertained.

Mr. Keenan said he had had trees killed by the agency of this mite; he had examined the roots of his trees, and found them apparently healthy.

Prof. Riley, in continuation of the subject of his remarks last evening, spoke further about the use of kerosene oil first mixed with milk, and then diluted with water. He thinks it will be found useful in the destruction of aphis and many other noxious insects; but does not recommend it as a remedy against the curculio. He had before described some of the differences between the apple and plum curculio, but there were still others. The plum curculio is timid and easily shaken down from the tree. The apple curculio hangs on, and is dislodged with the greatest difficulty. As before said, the plum curculio transforms in the ground, the apple curculio in the fruit. The plum-gouger transforms in the stone, while still soft, and ceases its destructive work when the stone has hardened. Insects of this character can be trapped by laying pieces of bark or wood around the trees early in spring. The curculio will gather under them, and can be easily destroyed. The work of the curculio is principally done during the night; they work some also in daylight; but many more can be caught by the shaking-down process at evening and early in the morning. Shaking is the great and only efficient remedy yet discovered, and if faithfully performed once a day, from the time the fruit is formed until it is ripened, will probably save, in most seasons, more fruit than would be wanted upon the tree. He recommends the same treatment for peaches also, where the curculios prevail.

The question was asked of the Professor, if bees ever injure grapes?

He replied that this question had been a subject of controversy for a century past, and that in Germany prohibitory laws against bees had been passed. His attention was first called to it in Missouri, where during a very dry season, when the bees found great difficulty in finding their accustomed food, a whole vineyard was ruined by their attacks. He had also known an instance in Pennsylvania where a whole crop of peaches had been destroyed by bees. He had, therefore, in some cases where bees were too numerous, and in destructive quantities, recommended their reduction, and had been severely "pitched into" by bee-keepers in consequence. The bee has the power to break or cut the skin of the grape, for the structure of its jaws is practically the same as that of the wasp. He believed, however, practically, bees do more good than their occasional harm, by pollenizing and creating new varieties. Bees, naturally, do not injure grapes; but only when driven to it by a scarcity of their natural food, during drouth, and when the flowers are dried up and withered. They will then attack sweet fruits, and do sometimes rupture perfect skin. In the case mentioned in Missouri, the grapes were Ionas—not Concords. The proper way to try experiments in this line is to starve the bees till they are very hungry, and they will then rupture the skin and destroy the grapes. He is so perfectly satisfied that bees do this under certain circumstances, that nothing can change this conviction. In the South, the cotton-worm sometimes, under similar conditions, destroys both peaches, figs and grapes. He mentions this as an analogous case; and where a moth with much less ability for piercing than the bee, does nevertheless pierce and destroy even harder-skinned fruits.

Professor Riley also gave an interesting history of the discovery of the *Phylloxera vastatrix*, which has become so destructive to the vineyards of Europe, and which seems also to be threatening much damage to the vines of California, and perhaps to other sections of our own country. He described both the gall, and the root insect, and their various forms and transformations. He finds an analogy between the winged form, which the *Phylloxera* sometimes assumes, and certain winged seeds which are carried to considerable distances by the winds.

The Professor's remarks were accompanied by handsome and profused drawings, and he was listened to with marked interest and attention by the society.

STRAWBERRIES.

The discussion of the Strawberries was then taken up, and Mr. Pierce recommended the Crescent Seedling as an early variety, of fair quality and great productiveness, yielding more early berries than any other kind.

Mr. Trowbridge had found the Wilson as productive, and about as early as the Crescent.

Mr. Crawford considered the Crescent as unworthy of attention, there were so many other varieties which were better in all respects.

Mr. Ohmer asked for information about the Glendale and Sharpless.

Mr. Crawford answered: the Glendale has all good qualities as a market berry, but two; it is not of first quality, and the color is not bright enough to be attractive. Thinks it has every other requisite for a good shipping fruit. Sharpless is tender as against frosts in spring, and had suffered seriously with him from this cause. He objects also to its irregular shape. Considers it good in quality, but not better than many other kinds. Cumberland Triumph is better.

Mr. Pierce thinks the Glendale is objectionable on account of its very large hulls, and besides it is, with him, on light soil, miserable in quality. Mr. Crawford's heavy clay soil produces somewhat better berries.

Mr. Trowbridge would call attention to a new strawberry, Finch's Prolific, which he regards as the best variety to follow Wilson's Albany. It is a staminate, and remarkable for productiveness and long-continued bearing. The past season it remained productive and of good size, to the tenth picking. A healthy plant, berry of good color and firm texture, and of great promise for a shipping and market strawberry.

Mr. Snider finds both Wilson and Forest Rose good in his soil. Considers the Wilson good when ripe.

Mr. Ohmer said he would like to hear of a market and shipping strawberry that was better than the Wilson.

Mr. Crawford said the hulls upon the Glendale, mentioned by Mr. Pierce, have their uses. They protect the blossoms so that he has never known them killed by late spring frosts, and they also protect the berry from injury in shipping. He thinks the Cumberland Triumph the best berry for home use and near market. Captain Jack will do for those who are not particular as to quality. The Warren is a very promising berry, and very good in quality. The Hervey Davis is a very fair berry, but the plant is not as good as many others. The Crescent Seedling he regarded as unworthy of attention.

Mr. Julian advises all persons who raise strawberries for the market, and not for plants, to "go slow" on new kinds. He regards Green's Prolific as among the best and most profitable. Recommends also Charles Downing and Kentucky. He still grows Wilson to some extent. He does not find one in ten of the new kinds introduced of any special value.

RASPBERRIES.

There was a rather informal talk about raspberries, by Messrs. Ohmer, Trowbridge, Weltz and others. The principal points elicited were, that the Gregg was still regarded the best and most profitable among the black-caps in most places, but it was late in ripening. Mammoth Cluster is one of the best, perhaps next in popularity to the Gregg. For a red berry the Turner was recommended as fine in quality, and very productive. Excellent for home use, but too soft for distant shipment. The Reliance and Cuthbert were both recommended as promising and worthy of trial. Brandywine and Thwack good to sell, but too poor to eat.

BLACKBERRIES.

Mr. Pierce says the Kittatinny is still the best variety he grows. Were it not for its tendency to rust in many places, it would probably be the best blackberry yet introduced. The Snyder blackberry is too small.

Mr. Snider has grown the Lawton blackberry for several years, and has never seen any rust upon it.

CROP REPORTS AND STATISTICS FROM THE OHIO STATE BOARD OF AGRICULTURE.

Mr. W. I. Chamberlain, Secretary of the State Board of Agriculture, distributed among the members copies of his Crop and Stock Report, containing much valuable and interesting information. He said this, his first publication, was the beginning of a project to obtain and publish, at short intervals, accurate statistics of the wheat and corn crops of the State, with comparative tables and estimates; also of the fruit and meat products, and such facts and figures in relation to the great agricultural interests of the State of Ohio as will be of most value to the farmers and horticulturists.

RESOLUTIONS.

Mr. Leo Weltz, of Wilmington, then introduced and read the following preamble and resolution, concerning the proper work of the Ohio State University at Columbus, Ohio, which was adopted by the Warren County Horticultural Society, at their meeting at Lebanon, in September,

1880. After discussion, it was moved by Dr. Warder, that the same be approved and adopted by the Ohio State Horticultural Society, which passed by a unanimous vote:

PREAMBLE AND RESOLUTIONS BY THE WARREN COUNTY HORTICULTURAL SOCIETY.

"The special committee appointed to examine and report upon the supposed necessity of increasing the facilities of the Ohio State University for educating the young men of the State in a more thorough and practical education, would report that

"Your committee are of opinion that, owing to a want of the proper facilities, such an education as is contemplated in the establishment of the institution, and such a one as would meet the wants of the people, cannot now be obtained at the University, and that the management have been crippled, and the usefulness of the institution impaired, by the absence of the necessary funds The Legislature not having paid that attention to horticulture and agriculture that their importance demands, has refused to make the necessary appropriations.

"We believe a considerable sum is necessary to place the institution on a basis corresponding with the other public institutions of our State, and commensurate with the magnitude of the objects sought to be obtained by its establishment.

"We believe the time has come for action looking to the correction of this evil, and that if the legislators do not of their own judgment see the necessity of moving in that direction, they should be made to see it by a power behind them.

"We regard the present time as opportune, and this society as a legitimate instrument to inaugurate a movement intended to effect a change and correct the evil complained of.

"We recommend that a memorial be sent from this society to the Legislature praying for an appropriation sufficient to meet the wants of the University, and that a circular letter be addressed to each horticultural society in the State, asking them to co-operate with us and send a like memorial, and, that if thought best, that we address each agricultural board of the State asking them to co-operate in this movement. To that end we recommend the following resolution:

"*Resolved*, That we believe the efficiency of the Ohio State University is impaired by the want of proper conservatories, and other appliances necessary to impart a practical and experimental knowledge of horticulture and agriculture; that a committee of three be appointed to memorialize the Legislature, and also to address a circular letter to each horticultural society in the State, inviting them to co-operate with us in sending a like memorial."

The following resolution, offered by Mr. W. I. Chamberlain, was adopted unanimously:

Resolved, That inasmuch as it is probable that with the near change in all othe departments of the government, there will be a change in the management of the national department of agriculture, we earnestly request:

1st. That the new Commissioner of Agriculture be chosen from the great agricultural portion of our land, the West.

2d. That he be a practical business man as well as one both scientifically and practically acquainted with agriculture and horticulture, and one in whom the agricultural societies and Boards of our land have full confidence.

FINAL RESOLUTIONS.

The committee on final resolutions reported the following, which were also adopted unanimously.

Resolved, That the thanks of the Ohio State Horticultural Society are due to the Columbus Horticultural Society for their cordial reception, the ample provision made for our accommodation, and kind attention bestowed on us during the sessions of the society just closing, and especially are we grateful to the ladies of the Columbus Horticultural Society for the elegant reception given us at the Agricultural Rooms on the evening of December 9, and we assure them that we shall always remember that social event with grateful pleasure. We also desire to express our thanks to members of sister horticultural societies who are present with us at this meeting. We thank them or their presence and for their words of cheer and instruction.

Resolved, also, that we feel under especial obligations to Professor C. V. Riley for his visit to our society, and for his very interesting and highly instructive talks on entomology, and the many practical hints he was pleased to give us; and, finally,

Resolved, That, as members of the Ohio State Horticultural Society, we go home from this sixteenth annual meeting determined to labor more earnestly for the advancement of the horticultural interests of our State.

Mr. Woodward, of Lockport, New York, expressed much gratification at being present at this meeting, and at what he had seen and heard. He invited attention to the fact that the annual meeting of the New York State Horticultural Society would be held at Rochester, on January 26th, 1881, and hoped to have delegates appointed from Ohio to meet with them.

Upon motion, the executive committee were authorized to appoint delegates to attend such of the meetings of our sister societies as may be expedient and desirable.

Dr. John A. Warder was appointed a delegate from this society, to attend the annual meeting of the Indiana Horticultural Society, at Crawfordsville, December 21, 22 and 23, 1880.

Mrs. Boyd, of Indiana, gracefully expressed her pleasure in attendance at this meeting, and tendered her thanks to the members for the courtesies and kindness extended her.

The meeting of the Society was then, on motion, adjourned *sine die.*

APPENDIX.

The necessary delay in the publication of our Annual Report, in order to have it incorporated in the report of the State Board of Agriculture, thus giving it a wider circulation than we could otherwise accomplish, renders it desirable that the doings of the State Horticultural Society and its auxiliary county societies for the portion of the year 1881, preceding publication, should be noted in this report. It may also be remarked that the past winter of 1880-81 has been one of unusual severity, causing in many places great injury to fruit trees both in the nursery and in the orchard. Apple trees, as well as peach and plum trees, and the more tender varieties of sweet-cherries have been injured not only in the fruit-buds, causing loss of present crops, but it is feared in many cases involving permanent damage to the trees themselves. In the central portions of the State, grape-vines, which were not protected early, and through the entire winter, had their wood injured, fruit-buds mostly destroyed, and consequently only the hardiest varieties are giving any fruit, and these very little. But the renewing-power of the grape-vine is great, and vines, whose wood was killed to the ground, are covering the trellises as profusely, and giving as fair a promise as ever for the coming year. The season being warm, and rather dry, the growth of grape-vines is not only vigorous but healthy. Although such a winter may not occur again for many years, its lessons should not pass unheeded. More attention should be paid in planting permanent orchards of the hardier and "iron-clad varieties." The same remark is also applicable to even the smaller fruits. And it cannot be too strongly recommended to those who wish to make grape-growing profitable and successful, to prune early in autumn and lay the vines upon the ground, covering the canes for next year's fruiting with a few inches of earth. This will save the tender, or half-hardy kinds in the hardest winters. Some experienced vineyardists find the fruitfulness of the hardiest kinds greatly improved by pruning in the fall, as above recommended, and simply pegging or fastening the vines closely to the surface of the ground, without covering. This would be sufficient protection for all vines in regions where the earth is covered with snow during the rigors of winter, and would doubtless be beneficial in all northern localities, subject to intense cold.

The above remarks are applicable, more particularly, to the middle portions of the State. Among the southern hills and highlands some peaches are reported, and less injury has been experienced, both to the trees and fruits generally. The same may be said of the favored island and lake regions of the north, where the extreme cold and great variations of temperature common in Central Ohio are comparatively unknown.

But even the difficulties and discouragements which we meet by reason of unfavorable seasons, perplexing maladies, and destructive insect enemies, may have their benefits by inducing greater care and watchfulness, better culture, and a more thorough study of the natural habits and requirements of our trees, plants and vines.

The meeting of the Nurserymen at Dayton, in June, was an important one, and as their business is so intimately connected with the horticultural interests of the State, a report of their proceedings is given, and will doubtless be found interesting to the members of the society.

AMERICAN ASSOCIATION OF NURSERYMEN, FLORISTS, AND SEEDSMEN.

REPORTED BY G. W. CAMPBELL.

The sixth annual session of the above named Association was held at Dayton, Ohio, on the 15th. 16th, and 17th of June, 1881, and was well attended by delegates from a large number of the most prominent establishments in the Union.

It was probably the most important and interesting session held by the Society, and the papers presented and the general discussions were of unusual value and interest to all engaged in fruit-growing and kindred pursuits.

It was estimated that about two hundred were present from all sections of the United States, and also from Canada. Several prominent nurserymen from the Southern States were cordially welcomed by their Northern brethren.

The objects of this society are declared to be :

The exchange and sale of nursery products, implements, and labor-saving devices.

The exhibition and introduction of new varieties of fruits, trees, plants, etc.

The cultivation of personal acquaintance with others engaged in the trade.

The perfection of better methods of culture, grading, packing, and sale of stock.

To procure quicker transit, more reasonable rates, and avoiding needless exposure of nursery products, when in transit.

The following were the questions proposed for discussion :

1. Responsibility of forwarders, and importance of obtaining a uniform action by the different transportation lines when freight has been guaranteed by a responsible shipper.
2. The importance of careful handling and packing.
3. Insects injurious to nursery stock, and best methods of destroying them.

4. Diseases, fungoid growths, etc., and remedies.
5. Best fertilizers, and how shall we obtain them.
6. New varieties of fruits likely to prove worthy of propagation.

After preliminary business, following the opening of the first day's session, Mr. J. J. Harrison, of Painesville, Ohio, read a paper upon "Railway Transportation," reciting many instances of loss of nursery products by reason of carelessness and delay in forwarding. He thought railways should be regarded as public highways, and their owners made responsible for unreasonable delays and injury to private interests. They cut through our homesteads and gardens, and claim to be above the laws which govern individuals They enforce unjust and unequal tariffs, discriminating against different localities and their products; control legislation by the votes of their employes, and influence even judicial decisions by the use of money.

A spirited discussion followed by Prof. Husmann, of Missouri; Peter Henderson, of New York: Thomas Meehan, of Philadelphia; Van Lindley, of North Carolina; Webber, of Tennessee; Barry, of Rochester, N. Y.; Reynolds, of Missouri; Moody, of Lockport, N. Y., and others. All recognized the importance of the subject, but differed as to the best means of remedying the acknowledged abuses, and of reaching the attention of the railway officials.

The following resolution, offered by Mr. Webber, of Tennessee, was adopted:

Resolved, That a committee be appointed by this Association, of two members from each State, to collect statistics showing the amount of freight shipped by nurserymen, and to present the statistics at meetings of railway freightmen and other railway officers, showing the need of more attention to freight rates, trees, etc.

A paper was then read by Prof. A. P Morgan, of the Ohio State University, upon the "Readjustment of Vegetation," showing the natural changes which have taken place in the distribution of plants upon the earth's surface by reason of changes of temperature, climate, etc., the gradual exhaustion of the soil by continued cultivation; and the rapid destruction of our forests for timber and to make room for tillage. The speaker enumerated many valuable trees which were likely to become extinct, and recommended the systematic planting of oaks, evergreens, maples, tulip-trees, etc., and strove to impress upon nurserymen the importance of, and their responsibility for, the "readjustment of vegetation" by preventing the extinction of valuable trees, and by supplying to regions now barren, those trees which were formerly found in those localities.

This paper was listened to with marked attention, and received a unanimous vote of thanks.

Mr. Zimmerman, of the Ohio Reform School at Lancaster, then read a paper upon "Insects Injurious to Nursery Stock, and the Best Means of Destroying Them," in which the various insect pests were spoken of; solutions of soaps and carbolic acid were recommended, sprinkled upon the leaves of plants infested by aphides or plant-lice; grubs, root-lice, slugs, and red-spiders were also described, and treatment with Paris-green and London-purple recommended for their destruction.

In the discussion which followed, Peter Henderson, of New York, recommended white hellebore to destroy slugs and caterpillars, and spoke of the danger of killing plants by the use of some of the poisons commonly used. Mr. Peters, of Delaware, recommended whale-oil soap and London-purple for killing slugs.

Mr. Thomas Meehan, editor of the Gardener's Monthly, of Philadelphia, read very interesting paper upon "Hybrids," in which he corrected the popular but erroneous idea that a "hybrid" is necessarily infertile or sterile. He illustrated his views by very happy allusions to the variations and improvements in flowers, plants, trees, and animals through the agency of cross-fertilizing or hybridizing, and also by individual variation. The paper was characterized by the ability and careful observation with which Mr. Meehan always treats his favorite topics, but want of space and time prevents anything like a full representation of it.

Another very interesting and valuable paper was read by Dr. John A. Warder, President of the Ohio State Horticultural Society, upon "Evergreens," in which were discussed the best varieties for planting, as well as directions for planting, pruning, and general treatment. The following "summing up," in conclusion will be found of practical value:

Trimming coniferous evergreens has for its object the perfecting of their shape and the increased density of their foliage.

To reach the best results, it is important that we study the natural habit of each species as a guide to our labors in trimming and training.

Preserve a single leader in our young trees, and this more particularly in those of fastigiate character. This training should be done while young, and continued while they remain in the nursery.

The leader, however, is not vital to the tree, as was once supposed; it may be cut back with impunity; so may the branches.

The lost leader may be very easily, it is often naturally restored.

Take pains, however, to guard the leader from accident or injury.

The knife is better than the shears.

The tree-digger is valuable as a root-pruner to check excessive vigor of growth that might endanger the beauty and compactness of the trees.

Carefully preserve the contour of your trees, and keep them well furnished with lower limbs, which can be effected by observing these two positive laws:

1. Let no upper limb extend so as to project beyond those that are beneath it.

2. Never trim up the bole of a young evergreen, but carefully encourage and preserve the lower limbs from the very ground. Continue this treatment for twenty, thirty, or fifty years, if you desire to ornament your grounds with objects of grace and beauty, surpassing the sculptor's art. Of course you must exclude all pasturing animals from the plantations.

Peter Henderson, of New York city, read a good, practical paper upon "Market-gardening about New York city." The remarkable statement was made, that, in the immediate vicinity of New York, as high as $100 per acre was paid as rent for ground for gardens, the gross income from which averages $1,000 per acre, by means of careful cultivation and judicious succession of crops throughout the season. Some interesting details of planting and marketing were given, some new varieties of vegetables commended, and the important subject of fertilizers was also discussed. The paper will probably be extensively published, and is worthy of the consideration of all gardeners.

A very able paper was read by Mr. W. C. Barry, of Rochester, New York, upon "Ornamental Planting," in which the best varieties of ornamental trees and shrubs were designated, and their appropriate uses.

Mr. Meissner, of Missouri, read also a valuable and interesting paper upon 'Grape-culture" both in this country and in Europe, giving some account of the destruction of the foreign varieties by the ravages of the Phylloxera, and the present and prospective demand for American varieties to supply the failing vineyards of the Old World.

Mr. A. Curtis, of Quincy, Illinois, furnished a paper upon the "Propagation of the apple and cherry in the West;" and Mr. J. Van Lindley, of North Carolina, one upon "Propagation of Nursery Stock in the South," which were received with marked attention.

A general report of the quantity and condition of Nursery stock, by the members present, indicated that in many sections the past severe winter had injured peach trees, sweet cherries, and all partially tender varieties; that general nursery stock was in fair supply, but no surplus: and there seemed a general impression that a better demand was to be expected for trees, vines, and plants, and that advanced prices would be obtained.

Among the pleasant incidents of the session were a visit to the beautiful Soldiers' Home, near Dayton; a courteous reception by Gov. Patrick, who is President of the Institution; and a bounteous and tasteful banquet offered to the Association by the members of the Miami Valley Nurserymen's Society.

The following officers were elected for the ensuing year: President, Wm. C. Barry, Rochester, N. Y.; First Vice-President, A. Curtis, Quincy, Ill.; Secretary, D. W. Scott, Galena, Ill.; Treasurer, A. R. Whitney, Franklin Grove, Ill.; Executive Committee, Joshua Maxwell, Geneva; Leo Weltz, Wilmington, Ohio; G. E. Meissner, Bushberg, Mo.

The next meeting is to be held at Rochester, N. Y., on the fourth Wednesday in June, 1882.

The following report of the summer meeting of the Columbus Horticultural Society is by Col. G. S. Innis, President:

THE COLUMBUS HORTICULTURAL SOCIETY.

This organization held their spring meeting and fair at the Board of Trade Rooms. There was a good attendance of the live members of the society, and a fine show of flowers, plants, fruits and vegetables, closing up at the end with a social, which was enjoyed very much.

Some of our members exhibited fine lots of strawberries. Mr. Julius Zinkel had four varieties on exhibition, which showed that he has become an expert in the cultivation of this best of all berries.

Dr. Blesch and Mr. Simmons, under the firm of Blesch & Simmons, exhibited some twelve or thirteen varieties. All of superior quality. They have some six acres in this fruit, and this year sold about four hundred bushels, averaging three dollars per bushel. Among their varieties they have Champion, Shenandoah, French's Seedling, Wilson, Captain Jack, Kentucky, Green Prolific, Crescent Seedling, Forest Rose, and others.

Tree fruits in Franklin county are almost a failure this season, 1881. In fact many of our hardiest varieties of the apple-tree, and situated on our best soils for the growth of fruit-trees, are dying. Some, the whole tree, others half or more, others still, single limbs or a part of the top. Some orchards just come into bearing, being nearly ruined. My opinion is this state of affairs was caused by the severe cold of last winter, assisted, perhaps, by the very severe drouth of July, 1881.

LOCAL SOCIETIES AND THEIR WORK.

While the space at our disposal will not permit an extended report of the doings of all the local or county societies which are in active operation, some notice, even beyond that furnished by members at our annual meeting, will be found of interest. Among the most active and efficient societies in the State are the Montgomery, Portage, Stark, Belmont, Lucas, Trumbull and Franklin county societies, and the Cincinnati Horticultural Society. The latter society holds weekly, the others monthly meetings. That these societies are doing a good work, and diffusing a great amount of valuable information, as well as cultivating habits of social and friendly intercourse among their members, no one can doubt who attends their meetings. The exhibitions of handsome and well-grown fruits creates a spirit of friendly emulation, and the discussions upon the merits and demerits of new varieties brings out the facts as to their character and value. The reports upon the condition of the orchards, gardens, vineyards, and kindred topics connected therewith, are both interesting and valuable. The essays, too, and the discussions following, are generally instructive and full of interest to all lovers of horticulture.

The Montgomery, Portage, Stark, Trumbull, and probably others, are organized upon a general plan designated as "Social," and the members are of both sexes. The officers consist of a President, Vice-President, Treasurer and Secretary; an Executive Committee of three members; Standing Committees upon Fruits, Flowers and Vegetables; and Special Committees upon Orchards, Small Fruits, Ornithology, Entomology, Vegetables, Vineyards, Botany, Statistics and Ornamental Planting. Regular meetings are held on the first Wednesday of each month, and the places are selected at the beginning of the year, and printed, with the names of officers and committees, upon cards, which are distributed among members and others interested. The meetings are held at the houses or upon the grounds of the members, and a basket or picnic dinner is an important feature of each meeting. An essayist is also appointed for each regular meeting, and the proceedings are published, not only in the local papers, but in pamphlet form for distribution. These pamphlets are gathered into a valuable volume at the close of the year.

STRAWBERRY EXHIBITIONS OF 1881.

THE STARK COUNTY HORTICULTURAL SOCIETY

Met at Massillon, on Tuesday morning, June 14th, at 10 o'clock A.M. at the house of Col. T. S. Webb, at which there was a large attendance of the members, together with a delegation from the State Horticultural Society, including the President, Dr. John A. Warder, Secretary G. W. Campbell, G. H. Miller, W. G. Storrs and others. There was a very handsome display of strawberries, with many of the new kinds generally correctly named and well-grown, of about thirty distinct varieties.

The principal exhibiters were the following: Levi Stump, President of the Society, 12 varieties; Matthew Crawford, of Cuyahoga Falls, 14; B. T. Berlien, 9; G. Stump, 8; C. W. Forest, 5; Jacob Holl, 4; M. Wise, 2; I. K. McDowell, 3; M. Miller and S. H. Rockhill, 1 variety each.

Among the varieties that were specially worthy of notice were Cumberland Triumph, Springdale, Monarch, Sharpless (very large), Hart's Minnesota (good flavor), Charles Downing, Duchess, Monarch, Photo, Longfellow, Warren, Hervey Davis, Seedling No. 18 (of Mr. Crawford), President Lincoln (very large), Finch's Prolific (by Mr. Miller), Glendale and Crescent Seedling.

Finch's Prolific, a new variety from Hamilton county, a medium sized, firm berry, of good color, had been picked several days, showing remarkable keeping qualities. It is claimed to be very productive, an improvement upon the Wilson, in quality, and is regarded as a promising market berry.

The committee appointed to examine the different exhibits, reported "the best variety on exhibition, of more than one basket, Cumberland Triumph."

The best single basket, the Duchess.

The largest single berry (coxcomb-shaped,) President Lincoln.

The largest average berries, Sharpless, generally irregular, and coxcomb-shaped.

A picnic dinner, bountiful and excellent, was served by the ladies of the society. The tables were handsomely decorated with flowers, and were absolutely loaded with the delicacies of the season. It was greatly enjoyed by all present.

THE PORTAGE COUNTY HORTICULTURAL SOCIETY

Also held a Strawberry Exhibition on the following day, Wednesday, the 15th of June, at Kent's Hall, Kent, when the President and Secretary of the State society and other members were present, together with a delegation from the Trumbull County Horticultural Society, and some sixty-five members from the neighboring society of Stark county. The hall was tastefully decorated with flowers, the ladies contributing many handsome bouquets and baskets; and the exhibition tables were covered with as fine a display of strawberries as we have ever seen in the State. There were about 175 plates of strawberries by nineteen exhibiters.

Frank Ford exhibited the largest number, forty-three varieties; Geo. W. Dean, thirty-one; G. E. Davis, twenty-two; Matthew Crawford, eighteen; B. F. Conway, twelve; Chas. Waldron, ten; Geo. D. Streator, six; H. Y. Beebe, seven; S. N. Sanford, five; Andrew Willson, three; Frank D. Gardner, four; John Way, three; Mrs. Geo. Somerville, two; A. E. Stephenson, two; A. O. Hayward, two; L. B. Pierce, two; George Tuttle, two; T. R. Mason, two, and Isaac Phelps one variety of strawberries.

A new variety, named Mrs. Garfield, exhibited by Matthew Crawford, a bright red, cone-shaped berry, handsome and quite uniform, large size, medium firm, light red flesh, fine flavor; and one of the best among the large berries. A promising new kind.

Shirts—thought to resemble Bidwell very closely—a large, long, and sometimes irregular or coxcomb-shaped berry; medium dark red; quite firm and bright orange red flesh inside; flavor rich and good. Promising well.

Miner's Great Prolific, as exhibited here, was very fine; equal in size to any variety shown.

Cumberland Triumph was also among the finest and most attractive, and seemed a general favorite.

Springdale was also handsome; in form much like Cumberland Triumph; a little deeper in color, and a little more acid in flavor; light, orange flesh; very good.

Photo, a new variety of Mr. Crawford's, a large, long berry, somewhat resembling Longfellow, was regarded as a promising kind.

Mr. O. F. Haymaker read an interesting essay on the strawberry, in which he mentioned a visit to Mr. Crawford's grounds, and that he would place "Photo" at the head of the list of his forty varieties, for near market. At his request, Mr. Crawford named seven varieties, as the best, all things considered, as follows: Cumberland Triumph, Sharpless, Hart's Minnesota, Red Jacket, Duchess, Windsor Chief, and Capt. Jack.

Mr. Storer named the following as the best six: Duchess and Red Jacket for early; Sharpless and Cumberland Triumph for medium; Glendale and Windsor Chief for late.

A letter from T. T. Lyon, President of the Michigan State Horticultural Society, was read, which contained the following:

> "Our first strawberry this year is Metcalf, followed very closely by Duncan. I think Crystal City may have been quite as early as either of those named, but did not compare them at the time. Chas. Downing, Cumberland Triumph, Capt. Jack, Bidwell, are ripening quite as early, possibly a little earlier than Wilson. Both Marvin and Shirts are lacking in vigor as compared with Bidwell and Sharpless, which are with me among the most vigorous."

Following the essay and letter were interesting remarks by several visiting friends.

Mr. Stump, President of the Stark County Society, said at their meeting the day before they had as large berries, but not as many varieties as he saw here. The fruit this year is better than last.

Mr. Geo. H. Miller said that this is not his first visit to the Portage County Society, and he heartily congratulates the society upon the success attained. The number of varieties and the qualities of the strawberries, and the choice varieties of flowers and the excellent taste exhibited in arranging them, indicates commendable growth. Of strawberries, Miner's Prolific is one of the best. Cumberland Triumph is excellent. Crystal City is one of the very earliest, but not good.

Mr. G.L. Miller, of Hamilton co., said that he came not to talk, but to see the show. Strawberries were not a success in his county this year, on account of the drouth. Crystal City, Cumberland, Glendale and Kentucky, all ripened at the same time. The Finch is similar in color and general appearance to the Duchess, with foliage like the Sharpless. It is a great bearer and excellent for marketing. Burr's New Pine is good, but not a special favorite.

Mr. Edgerton, of Barnesville, lives in a strawberry country. The Sharpless has not proved good. Does not seem to be a perfect blossom, and requires to be planted near a staminate variety to bear well. Jucunda is valuable. Cumberland Triumph is excellent, and one of the earliest. This year it has been sent to Chicago where $9.60 per bushel was obtained.

Mr. E. W. Turner extended to all a cordial invitation to attend the first strawberry show of the Trumbull County Society, to be held near Warren on the 17th inst. This large and fine exhibition of fruit inspires him with courage to work more earnestly. On low, damp ground, near Newton Falls, the Sharpless is very promising.

Dr. Warder said that every item of experience is valuable. He is glad to learn that there is still such a berry as Burr's New Pine; it has existed so long and been so satisfactory. In the Sharpless he has been exceedingly interested. The experience of two years, with this planted alone, has been unsatisfactory. The subject of cross-fertilization is intensely interesting. He has good authority for stating that a chestnut tree far removed from its kindred will not yield fruit, while it will furnish a crop when in close proximity to other chestnut trees. He would congratulate the Portage County Society on its eminent success, and especially the ladies for the cultivation and arrangement of flowers.

The modern Marguerite (ox-eye daisy) is taking a notable position in artistic decorations. The wild carrot is quite worthy of the same honor in the same ranks. But both of these are vile weeds, and both are difficult to eradicate. Beware of their tendency to spread.

Dr. Warder paid a deserved tribute to the memory of our former fellow-worker and Secretary of the Ohio State Horticultural Society, M. B. Bateham. Now that he has gone, those who have been so richly benefited by his labors, can honor themselves by contributing to the erection of a suitable monument, in memory of that faithful horticulturist.

The dinner to which the members and guests were invited was spread in an adjoining hall; and, in its tasteful decoration, and the abundant provision for the wants of all present, gave ample evidence of the generous hospitality of the ladies and members of the Portage County Horticultural Society. Nothing was wanting to make it thoroughly enjoyable. Two hundred and thirty persons partook of their hospitality, and the supply was not exhausted.

The exhibition of strawberries was certainly most creditable, and one of the largest ever made in Ohio, and its high character, as shown by the general excellence of the exhibits, reflects great credit upon the beneficial influences arising from a well-conducted horticultural society.

ANNUAL MEETING AT BARNESVILLE.

The following is compiled from the *Barnesville Enterprise*, sent without date, and the report of the meeting gave no indication of the time at which it was held, except that it was in June, and on Tuesday. W. I. Chamberlain, Secretary of the Ohio State Board of Agriculture, was present, and responded to the address of welcome, as follows:

He said he did not consider it fair to put him up with only a few minutes' notice to reply to so elaborate and poetic an address of welcome. But Barnesville was a good place to be welcomed to, not only on account of her luscious berries, but on account of her intelligent people. He referred in flattering terms to the

Agricultural Institute held here last winter, when he and Dr. Townshend felt almost ashamed to obtrude their views on men who seemed to have practical knowledge of every branch of horticulture and agriculture. He intended at some future time to prepare and deliver a speech on the disadvantages of a fertile soil. In Illinois, he said, on some of the fertile prairies, where nothing but corn and wheat are raised, and they with little labor, intelligence is at a low ebb, and is retrograding rather than advancing. Where they raise fine sheep and cattle, the grade is a little higher; but it is only where agriculturists have to pursue several branches of the industry, and to struggle with a not over-fertile soil, that the highest intelligence is developed. He thought our farmers here might profitably engage in other enterprises, such as the growing of locust and catalpa groves for posts and railroad ties. His speech all through was in his easy, humorous, common-sense style, and probably was better received than if he had prepared it beforehand.

Lunch was then announced, and the members fell to and made a gallant attempt to demolish the piles of luscious berries, the mountains of golden cake, and the rivers of rich cream. The attempt was a failure. All ate to repletion, but the fragments were more than twelve baskets full.

After dinner, the committee, consisting of G. H. Miller, Valentine Ault, and Esther Wilson, examined the berries entered for premiums and made the awards.

The following are the premiums: Best Monarch of the West, J. I. Conard; Sharpless and Glendale, Jos. Capstack; best plate of strawberries, size and beauty to rule, Cumberland Triumph, J & W. D. Edgerton; best display of strawberries, same; Crescent Seedling, Springdale, Cowing's Seedling, Forest Rose, and Downer's Prolific, same; Charles Downing, Jucunda, Kentucky, and Wilson's Albany, Jehu Hays. Best Early Richmond cherries and Cherry currants, J. I. Conard; Governor Wood cherries and Houghton's Seedling gooseberries, Emmor Bailey; Tartarian and Mayduke cherries, Peter Sears.

A good many berries were exhibited which were not entered for premiums. G. H. Miller, of Norwich, had ten varieties of strawberries, some of which were strangers in this locality. They were the Champion, Glendale, Windsor Chief, Captain Jack, Miner's Prolific, Forest Rose, Continental, Sharpless, Cumberland, Triumph and Pioneer. They were not entered for premiums, but were exceedingly attractive. These berries were kindly donated by Mr. Miller to the Enterprise. Among the fine berries entered which did not take premiums, were the following: J. Steer, specimens of Jucunda, Kentucky and Charles Downing; William Shipley, Black Defiance; J. T. Scofield, Monarch of the West; Eli Stanton, Kentucky; B. F. Mackall, Jucunda and Wilson; T. H. Wilson, Kentucky, Champion and Wilson. Most of the premium berrries were sent to Chicago, by J. W. Jones, in which market Barnesville berries are now the favorite.

James Edgerton was called on to open the discussion on strawberries, and said that while there were about 200 varieties, he would not plant more than five. His first choice was the Crescent Seedling, which was very good and profitable, and would suit everybody. It was a better grower than the Wilson, and an equal bearer. Cumberland Triumph he would place second. Forest Rose is good, but he does not recommend its planting. Crescent Seedling will sell in Chicago for Wilsons, and they can be raised cheaper. The Crescent also ripens sooner and lasts longer. To have berries next season he would plant soon, old plants, and not wait for runners; rows three feet apart, plants 12 to 15 inches, and cover with straw before cold weather sets in.

J. P. Hall reported a failure in raising plants, the crown being eaten by a new insect which came in myriads. The only plants saved from their ravages grew in a wet place. He reported a splendid crop of Charles Downing's at James Steer's. They were large and would bear shipping.

The *Enterprise* also published the following in reference to strawberry-growing about Barnesville:

In this vicinity there are over forty acres of berries. John Scoles is the largest grower, having about eighteen acres; James Steer comes next with six acres, while J. & W. D. Edgerton, W. J. & A. Barlow, B. F. Mackall, R. S. Barnes, Jehu Hays, I. R. Lane, Joseph Price, Thomas Wilson, Wm. Bryant, and others have smaller patches. The rain last week saved the crop.

The most of the berries go to Columbus and Wheeling, but a good many are shipped to Washington, Pa., Fairmont, W. Va., Pittsburgh, Cambridge, Zanesville, and Chicago. The first berries shipped to Columbus sold for $5.50 per bushel. The first to Chicago brought $5 per bushel. Two dollars a bushel, net, will probably be the average price of all the berries sold here. One dealer was offered nine cents a quart for all the berries he has this year, delivered at the depot, and he refused it. The Wilson continues to be the favorite variety for all purposes. The Jucunda ranks next, closely followed by the Charles Downing, the Crescent Seedling and the Cumberland Triumph. The finest Wilsons we have so far seen were grown by B. F. Mackall; the best Jucundas by John Scoles; the best Downings by Jehu Hays, and the best Crescent Seedling and Cumberland Triumph by the Edgertons. Others have doubtless as good berries, but we have not seen them. The best patch of berries in the neighborhood is that of Jehu Hays, near the fair ground. He has only about an acre, but the yield has been estimated at from one hundred and fifty to two hundred bushels. The berry season gives employment for a time to a large number of persons. John Scoles will have a hundred pickers at work when the season is at its highest. The price paid for picking ranges from a cent to a cent and a half a quart.

ACKNOWLEDGMENTS.

The Secretary would express his thankful acknowledgments to the brethren of kindred State Societies for their courtesies in sending copies of their valuable and interesting reports.

The evidences presented by these reports are most gratifying, as indicating a great and growing interest in, as well as the general acknowledgment of, the importance of horticulture.

The State of Michigan issues an annual volume of 500 to 600 pages, containing not only reports of the meetings of the State and local societies, but a very large amount of the most valuable information from the most distinguished horticulturists and scientists in the country.

The volume for 1880, just received, reflects great credit upon its Secretary, Mr. Charles W. Garfield, of Grand Rapids, and contains, in addition to the usual large amount of interesting matter, a complete botanical classification of the Flora of Michigan, and an index to the contents of all the previous volumes published by the society. The financial condition of the society is also excellent. A life-membership fund of about $1,200, and an annual appropriation from the State of $1,400, enables the society to carry on its good work with great credit to itself and corresponding benefit to the people of the State.

The State of Kansas also issues an annual volume of great value and interest to horticulturists and to all of kindred pursuits. The volume for 1880, received from the Secretary, Mr. G. C. Brackett, of Lawrence, is an elegantly printed and bound volume of near 500 pages; contains a large amount of valuable statistical information in addition to full reports of the doings of the State and local societies. A copy also of the constitution and by-laws, and also the State laws relating to horticulture are also included. Specially interesting is the State law, making the appropriations for the Kansas State Horticultural Society, $4,500 for the year 1881, and a like amount of $4,500 for the year 1882, making $9,000 in two years, for the publication and distribution of its reports, and other expenditures of the society. All honor to the legislature of the noble State of Kansas for its liberal and appreciative acknowledgment of the importance of horticulture.

The State of Illinois also issues a handsome volume for 1880, received from the Secretary, O. B. Galusha, of Morris. It contains 326 pages, and is filled with the usual reports, papers and statistics of great value and interest. The interest taken in horticulture in Illinois may be judged by the fact that its legislature appropriates $2,000 annually for its State Horticultural Society. Liberal as this amount seems, the society have resolved to ask for $2,600 for the coming year, and there is little doubt that they will get it.

The State of Indiana, through the courtesy of its Secretary, W. H. Ragan, of Clayton, sends me a neat little volume, of 186 pages, of the Transactions of the Indiana Horticultural Society for 1880. It contains reports of proceedings of the State and local societies, papers and addresses of much interest, and a revised list of fruits recommended by the society. A very creditable little volume, and better than could be expected from a State appropriation of $300, which appears by the Treasurer's report to be the amount received.

The Proceedings of the Kentucky Horticultural Society, at their annual meeting in January, 1881, a handsomely printed little volume, of 100 pages, from its Secretary, J. Decker, of Fern Creek, is full of valuable information as to the horticulture and pomology of Kentucky. The address of its able President, Thomas S. Kennedy, and the reports of its members upon the orchard fruits, and upon grapes and their culture, are of much interest and indicate a growing interest in horticulture in that State.

The Proceedings of the New Jersey State Horticultural Society at its Sixth Annual Meeting, February 10th and 11th, 1881, sent me by its Secretary, E. Williams, of Montclair, a neat little volume, of eighty-two pages, is principally devoted to the discussion of grapes, strawberries, and other small fruits, the best varieties, and best modes of culture.

The First Annual Report of the Board of State Viticultural Commissioners of California, a handsomely printed and illustrated volume, of 175 pages, is sent me by its Secretary, John H. Wheeler, of San Francisco. This volume contains a large amount of information about the grapes, wines and raisins of California, and as their grapes are principally the foreign varieties, the *Phylloxera vastatrix* receives a good deal of attention, and the methods of avoiding its destructive effects are largely discussed. The French method of grafting upon native, and phylloxera-resisting stocks seems most approved.

REPORT UPON WESTERN N. Y. HORTICULTURAL SOCIETY—ANNUAL MEETING.

BY J. J. HARRISON.

Fellow-Members of the Ohio Horticultural Society:

As delegate from this society to the meeting of the Western N. Y. Horticultural Society, held January 26 and 27, 1881, it devolves upon me to make a summarized report of the meeting and its proceedings. It was held in Rochester, in the Council Chamber of their fine City Hall, a place admirably adapted for the purpose; in fact, a fitter place for such a gathering could scarcely be imagined. The attendance was large, including a delegation from the Ontario Horticultural Society, consisting of P. C. Dempsey, D. W. Beadle, Wm. Saunders, A. N. Smith, and Chief Johnson of The Six Nations; the latter in full costume, who addressed the society in his best English, speaking of the interest he felt in the meeting, and the advancement of horticulture, stating that his scalping-knife had been turned into a pruning-knife.

President Barry, in his very able address, said, "In entering to-day upon the second quarter century of this society's existence, we have many reasons for mutual congratulations. During a period of nearly seven years, our country suffered from such a commercial depression as it never before experienced. Every branch of industry felt its paralyzing influence; building, planting and horticultural improvements of almost every kind, were in a great degree suspended.

These years of depression are happily ended. Our country, it is believed, has entered upon a new era of prosperity. Evidences of renewed confidence and activity are seen on every side, and I believe that in a year or two from this time, we shall witness a more general horticultural progress throughout our country, than we have ever seen before, even in the most prosperous times."

"These are cheering words, from one whose experience through a life-long connection with horticulture, has placed him in a position to judge of the future from the vantage ground which he so conspicuously occupies. And we as horticulturists, who have for these many years felt the depressing influences of the times, hope that the predictions of President Barry may be amply fulfilled, and that in the better times coming, our influence as a horticultural society may extend, until every rural home in our State may give some indication of its refining influence. We see the need of improvement on every hand, and in many respects; but in considerable portions of our State the question of first importance is, how can the fertility of our soil be maintained?—for neither will the orchard, vineyard, garden, or lawn, give satisfactory results, if the soil is impoverished.

President Barry, in his address, dwelt at length "as to fertilizers of the soil," remarking that, having been accustomed all our lives to the use of barn-yard manure, we knew but little or nothing, practically, of any other fertilizer, viewing all others with distrust; and, recommended that farmers, orchardists, and gardeners should each experiment for themselves, with the various artificial manures in the market, with a view to ascertaining the sorts most needed by their soils, and the ones best adapted to the production of each particular crop. No one can doubt the wisdom of such a course, as it is only through experiments, carefully conducted, that the value of commercial fertilizers can be determined. Reference was made to Mr. Harris' book, "Talks on Manures," and also to Mr. Ville's book on artificial manures, both being recent works, and considered authority on the subjects of which they treat. Ville is a Frenchman, director of an experimental farm at Vincennes, France. An English translation of his work has been published in London, and Mr. Barry said he believed it to be the most fascinating work of the kind in existence. Mr. Harris, with whose writings you are all familiar, has great faith in artificial manures, and asserts that they are destined to accomplish great things for American agriculture, directly or indirectly; that their general use will lead to a higher system of farming, to more thorough cultivation, more root and fodder crops, improved stock, higher feeding, and richer manures. Ville says: "Till within the last twenty years it was thought that farm-yard manure was the only fertilizing agent. We maintain that this is wrong, and that it is possible to compose artificial manures superior to, and cheaper than farm-yard manures." He asserts that farm-yard manures have irretrievably lost the character of being absolutely necessary to agriculture, artificial manures being unquestionably more remunerative; and cites a multitude of experiments in proof of his assertions.

We all know that there can be no mistake about barn-yard manure properly applied, but when we take into account its bulky nature, and the large amount that must be used to produce the desired result, and the difficulty met with in the making or procuring the large amount needed, especially when it has to be carted a great distance, we may well pause and consider the claims of more concentrated fertilizers. And, notwithstanding, that often more is paid for them than they are worth to the agriculturist or horticulturist. The balance of testimony is largely in their favor, and in many instances marvelous results have been produced by their use, especially on worn-out clay soils. But as soils and these many artificial fertilizers differ in their constituents, we find that we lack knowledge as to what to apply; as to which of the many fertilizers offered will produce the best results on certain soils, or in the same soils on different crops; but there is one fertilizer that is to be relied upon every time, where it will thrive, and that is red-clover. I observe that with few exceptions, where soil is the most productive in our State, there the largest acreage of clover is to be seen, and after land is once in condition to produce a good crop of clover and clover-roots (for the roots are as valuable as the tops,) I hold that with proper rotation, no other fertilizer need be used. Recently, on the farm of Messrs. Smith & Powell, of Syracuse, N. Y., my attention was called by Mr. Smith to a field of Alsac [Alsike?], which Mr. Smith recommended as superior to clover on heavy or wet land, as it was less liable to winter-kill than clover.

W. C. Barry, as Chairman of the "Standing Committee on Native Fruits," gave quite a lengthy report, mentioning several fruits to which the attention of the committee had been called. Among the number was Clarke apple and Sutton Beauty, both of which were recommended for trial. Mr. Barry remarked, that in the rapid introduction of new fruits many of the older sorts were liable to be neglected, and mentioned several that he considered possessed merit. The Hoosic and Fredrick Clapp pear, and Gweii plum.

The Jefferson, Niagara, Prentiss, Duchess, Pocklington, Lady Washington, and other grapes, were spoken favorably of, among them the Vergennes, samples of which were on exhibition, and which General W. H. Noble described in the Rural New Yorker in the following language: "For hardiness, vigor of growth, large, bounteous fruitage, a luscious fruit of the richest tint, of blended pink and purple bloom; for its yield of wine with the most delicate aroma; for its early maturity of wood and fruit; for its long keeping quality, lasting in excellence beside the apple on our table, I think this the equal of any American grape yet grown. I say this with great tenderness toward all its native rivals."

I had the privilege of tasting samples of the fruit, and was very much pleased with its quality, and trust in it we may find a better-keeping grape than in any of its predecessors.

The raspberry discussion did not elicit anything particularly worthy of note. It was generally conceded that the perfect berry had not yet been introduced; each variety lacking in some essential point—either in productiveness, hardiness, quality of fruit, or in its shipping quality.

In strawberries, the Crystal City was recommended as one of the newer sorts that was very generally approved on account of its extreme earliness and good quality; but it was generally conceded that the fruit was too soft for shipping to a distant market. The plant is vigorous and productive, and requires hill culture.

Sharpless had succeeded almost universally, even beyond the anticipation of the most sanguine.

Glendale, on account of its bright color, lateness, and productiveness, was recommended as valuable for market.

Crescent Seedling was spoken of as a success, when grown in hills, on nearly all soils.

Bidwell. Mr. Roe spoke very highly of this promising new variety, which originated in Michigan, and was sent out by Mr. T. T. Lyon. The plant is a rapid, vigorous grower, and very productive. Fruit large, conical, regular, of a bright, glossy, crimson color. Flesh firm, pink, rich, meaty, and of a genuine strawberry flavor. Some pronounce it the most promising of the new berries. Several other varieties were named, but amount of testimony given in their favor was limited.

NEW PEACHES.

Alexander and Amsden were conceded to be fair peaches for amateurs, but unprofitable for market, owing to their being mutilated by birds, bees and wasps as soon as they begin to ripen.

Early Louise, a delicious peach, but too small for market.

Wheatland, recommended for market; a little later than Early Crawford; yellow, handsome, productive, and very solid or heavy. Tree hardier than Crawford.

Salway, highly spoken of by all who fruited it, as the best late yellow peach.

Wager was spoken of by several, but not highly recommended; fair size, of good quality, but a little dry; will carry good.

Allen will hang on the tree after it is ripe longer than Late Crawford; an excellent, handsome peach. This is very different from the Allen peach of Ohio, which is quite early, of the Hale's Early type, similar to Alexander, but not as large.

Mr. Charles D. Zimmerman, from the Committee on Entomology, made a very full and interesting report.

Mr. H B. Ellwanger, from the Committee on Flowers and Bedding Plants, made a report on "Typical Roses—Their Characteristics", which he classified as follows: Baron Prevost type, Giant of Battles type, La Reine type, Jules Margottin type, Victor Verdier type, General Jacqueminot type, Charles Lefebvre family, Duke of Edinburg family, Alfred Colomb family, Senateur Vaisse family, and The Monsieur Boncenne type, and, under these various headings, grouping long lists of varieties according to their various types or family characteristics, and concluded by stating that he had about exhausted the divisions that could be considered distinct types; though there are other roses that stand aloof, they have no followers, and instanced Baronesse Rothschild, Mabel Morrison, and Caroline de Sansal, as examples. He said none of the types mentioned, combined all excellencies, but that the Alfred Colomb, Charles Lefebvre, and Senateur Vaisse families have more good points concentrated in them than any of the rest; and that it is from these types that we have the most to hope for, as the seed parents of the better varieties that shall be raised in the immediate future; but hybridizers should seek to blend the excellencies which pertain to other families with the good features of these. Having this aim in view, we may hope in confidence for a deep crimson Marie Baumann of vigorous growth; a fragrant Eugenie Verdier, and a white Alfred Colomb.

The report of the Committee on Orchards, though not as complete as could have been desired, covered the products of several counties, and was sufficient to show that the magnitude of the industry was far beyond what we could imagine, were it not for such collated reports.

Mr. Wm. Saunders, of London, Ontario, read a lengthy essay "On the destruction of noxious insects," his first point being the necessity of entomological education, so that all may learn to distinguish between friend and foe in the insect world, that all may not be indiscriminately and unmercifully destroyed. as but a very small portion of beetles and insects prey upon fruits, and nearly all of these have insect enemies that prey upon them and keep them in check, and would to a much greater extent, if they were only known and fostered by intelligent horticulturists.

Mr. John J. Thomas, the veteran pomologist of Union Springs, gave some very interesting reports of "Profitable Fruit-raising", and premised by stating that no business can be successful, that is not thoroughly understood by those who conduct it, and can only grow into magnitude by long experience. He inquired what would be the probable result, should a banker, without previous experience, attempt at the outset to handle half a million of dollars? And that in no business is a complete previous knowledge more necessary than to the man who plants an orchard for profit. He must know, in the first place, enough to select a favorable locality; he must not only select the varieties adapted to the locality, but must select those that can be marketed to the best advantage; and must understand the art of cultivating, pruning, thinning, selecting, packing, shipping and selling; and attributes the failures of orchardists to their utter ignorance of all these requisites. I will cite some of the profits of fruit culture as given by Mr. Thomas. Mr. Oliver Chapin has an orchard of nearly 6,000 apple trees, covering 125 acres. In 1879, the crop sold for $17,000, over $135 an acre for the whole orchard.

Mr. J. S. Woodward, of Lockport, from an orchard of thirty-one acres, gathered 2,600 barrels of apples, which sold for over $5,000.

Mr. Peter D. Miller, north of Lockport, has eleven acres in apple orchard. In some years the fruit has sold for more than $5,000, and for the twelve years of bearing, in alternate seasons, the crop, taken together with the barrels, has brought $32,000, or $20,000 net, above all expenses. Seven of the eleven acres are planted with Baldwins, and from these seven acres nearly all the profits came. Mr. Thomas said that the largest orchard he visited last summer, was that of Robert McKinstrey's, near Hudson. It contains 26,000 apple trees, besides about 7,000 of other fruits, the fruit of which is nearly all marketed in Europe.

Lorin Rathbun, near Batavia, has a ten-acre dwarf-pear orchard, mostly of Duchess. A few years since, the orchard bore 1,205 barrels of fine pears, which sold for $5.00 per barrel, giving $6,000 for the whole, or $600 per acre for the entire orchard. Mention was made of a peach orchard near Richmond, Indiana, costing less than $400 to raise, the fruit of which brought $4,000 in a single season.

Mr. Eli Taylor, of Genesee county, has two and three-fourths acres in dwarf Duchess; it contains over 1,000 trees, and for several years has averaged about

$1,000 a year. Mr. Thomas gave other accounts of large profits, and in all reports given, I understood personal examination of orchards were made by him.

Mr. W. S. Little read an essay on the "Hornbeam as a hedge plant." The reader claimed that his experience in this country had confirmed to a singular degree much that is claimed for it in Europe, and led him to believe that this tree may become a valuable addition to our rather limited number of hedge plants.

Major Hugh T. Brooks followed with an essay on "Culture of Forest and Shade Trees."

The Treasurer's report showed a total receipt for membership, at one dollar each, of $174; payment for printing 300 copies of annual report, $153.50; other expenses, $37.74—total, $191 34; leaving a deficiency to date, including back pay due the Secretary, of $317.24. In a short time the sum of $511.00 was raised by subscription, President Barry leading off with $100. This amount of $511.00 was in addition to amount received for membership at this meeting. So the society has, probably, a greater reserve fund than at any previous time during its existence.

THE EARLY VICTOR GRAPE

Was described by Dr. J. Stayman, of Leavenworth, Kas., in the Report of the American Pomological Society for 1877, as follows:

> "Bunch medium, sometimes shouldered, compact; berry medium, round, black; flesh slightly pulpy, juicy, vinous, aromatic, sweet; quality very good. Season a week earlier than Hartford. This is the best early grape we have seen, perfectly hardy, healthy, vigorous, and very productive. Perhaps a seedling of Hartford, as it much resembles it in growth and foliage; but does not drop its fruit, and is free from foxiness."

In the Report of the Kansas State Horticultural Society for 1880, Mr. Stayman also speaks as follows:

> "The Early Victor grape which originated here with John Burr, from what we have seen and known of it, is the most valuable of the Labrusca species that we have seen, either for market or for wine, and so far entirely free from disease."

The Secretary would add that after several years' trial of this grape, and also having seen the fruit from different localities, he is convinced that it is the most promising for value of any early black grape yet introduced, and that its really good quality should warrant its extensive planting for early market. As soon as it is introduced and known to the public, it must drive out of market the Hartford, Talman, Early Champion, Ives and Janesville, whose execrable quality should not be tolerated simply because they are early. The Early Victor is as early as the earliest of them, and in quality certainly very good. I should say best of the Labruscas, and much purer flavored than Concord.

TREASURER'S REPORT

FROM APRIL 1, 1880, TO APRIL 1, 1881.

RECEIPTS.

Amount reported on hand April 1, 1880	$367 41	
Memberships paid from April 1, 1880, to April 1, 1881	105 00	
Appropriation from State	500 00	
		$972 41

DISBURSEMENTS.

Balance of salary, printing etc., and sundry expenses late Secretary, M. B. Bateham	$194 84	
President's expenses attending meetings (part from last year)	188 22	
Vice-President's expenses attending meetings	29 85	
Treasurer's (G. W. Campbell) expenses attending meetings	53 95	
Paid Nevins & Myers for printing Reports	35 00	
Treasurer's expenses for Society—printing, mailing Reports, stationery and postage, (acting Secretary)	26 72	
Freight charges on books, etc., from late Secretary	3 30	
Geo. W. Trowbridge—expenses attending meetings	27 20	
G. H. Miller, " " "	15 55	
Leo Weltz, " " "	55 50	
Geo. M. High, " " "	29 90	
J. J. Harrison, " " "	17 85	
Prof. C. V. Riley's expenses at annual meeting, Dec. 9, 1880	39 00	
Mrs. L. V. Boyd, delegate from Indiana Horticultural Society	7 50	
Leo Weltz, Treasurer's expense account	17 00	
Secretary's (G. W. Campbell) 1 quarter's salary to April, 1881	62 50	
Cash on hand paid to Leo Weltz, Treasurer elect	168 53	
		$972 41

OFFICERS AND MEMBERS

OF THE

OHIO STATE HORTICULTURAL SOCIETY,

FOR THE YEAR 1881.

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Vice-President—N. OHMER, Dayton.
Secretary—GEO. W. CAMPBELL, Delaware.
Treasurer—LEO WELTZ, Wilmington.

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J. J, Harrison, Painesville,
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Geo. W. Trowbridge, Glendale,
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Jerome Tice, Eleanor, Clermont Co.
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W. J. Townsend, Zanesville.
Dr. N. S. Townshend, Columbus.
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H. G. Tryon, Willoughby, Lake Co.
B. S. Upham, Kirtland, Lake Co.
J. M. Vandevoort, New Antioch, Clinton Co.
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J. T. Warder, Springfield, Clarke Co.
Dr. Joseph Watson, Massillon, Stark Co.
J. H. Way, Ravenna, Portage Co.
Perry Wehr, Youngstown, Mahoning Co.
Leo. Weltz, Wilmington, Clinton Co.
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J. K. Williams, Lexington, Stark Co.
W. S. Williams, Canton.
F. W. Woodbridge, Ravenna, Portage Co.
W. Williamson, Ravenna.
Joseph Wood, Marietta.
James Wilson, Jr., Lordstown.

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